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INDIA RUBBER WORLD

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HEVEA BRASILIENSIS
DICHROSS GUTTA
GUTTA-PERCHA

Edited by HENRY C. PEARSON—Offices, No. 150 Nassau Street, New York, U. S. A.

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APRIL 1, 1900.

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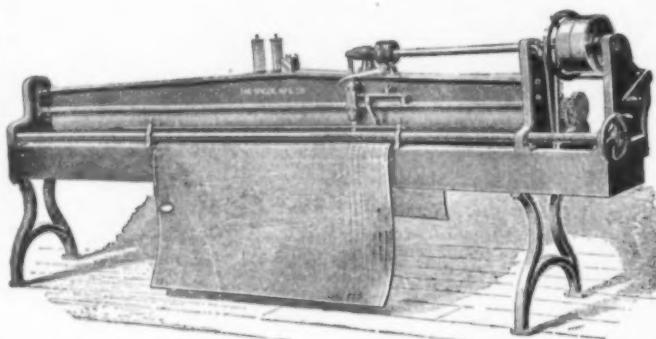
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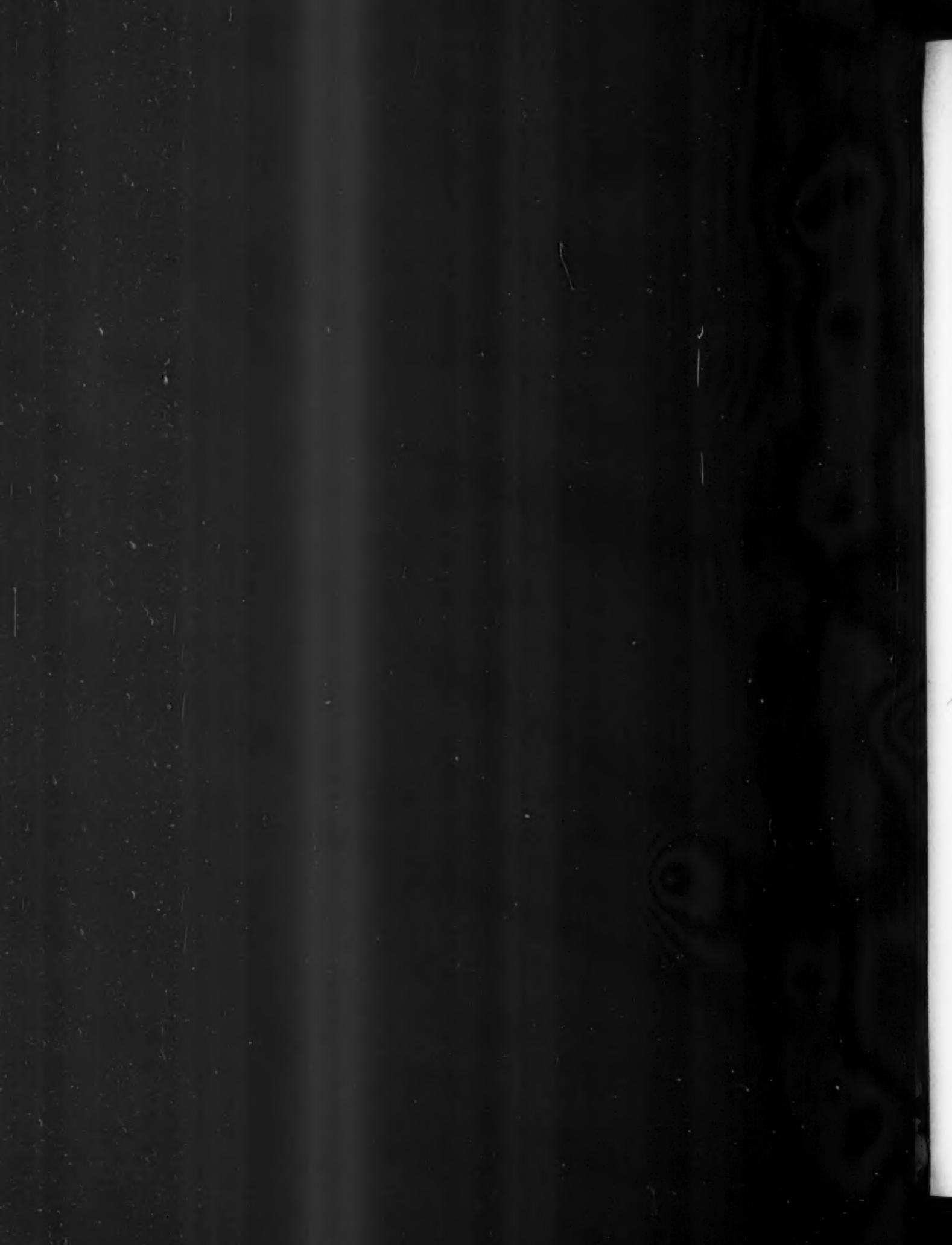
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Mr. HENRY C. PEARSON has purchased the entire stock interest of Mr. JOHN R. DUNLAP in The India Rubber Publishing Company.

After this date the offices of THE INDIA RUBBER WORLD will be at No. 150 Nassau street, New York.

A MATTER OF RECIPROCITY.

WE have a letter from a manufacturer who occupies a position of importance in the rubber industry in Europe, asking what opportunity exists for the admission of his son, a young man of good education who already has had some experience in the home factory, as an employé in an American mill. No doubt he would find a more ready welcome in American rubber factories, on the whole, than would prove the case in any other country where this industry has been developed. We know of several instances where a most decided objection has been made by British rubber men against the admission of foreign employés into their works, and, in fact, complaints have appeared in the organ of the British rubber trade that too many young men have come over from the continent, ostensibly for a better chance to find work than existed at home, when their real object was to pry into factory secrets.

While every rubber manufacturer doubtless is in possession of certain secrets in relation to his processes which it is desirable to guard to the fullest extent, and as long as possible, still one may become too much engrossed in guarding a pet secret to take note of the progress which one's competitors are making. It may be depended on that if an intelligent, progressive manufacturer in any other country wishes to learn what kinds of goods are being made in the United States or England or Germany, and how they are made, he is pretty certain to discover the information he seeks, whether his first attempt meets with a welcome or a rebuff. For our part, it seems that it might be wise to give reasonable freedom to a foreigner who comes seeking employment, provided he be intelligent enough to render it probable that something may be learned from him in return.

Instead of trying to keep a barrier about our rubber industry against all comers from abroad, we might imitate the example of the Germans, for example, who have built up so important an industry in rubber within a comparatively short period, by seeking to introduce here any ideas that may be acquired from foreigners. While of course Germany has contributed much in the way of new and original ideas to the development of the rubber manufacture as a whole, it remains true that this industry has reached the important position which it now occupies in that country through borrowing from other countries the best that they have developed. Not only might our American manufacturers learn something to their advantage in Europe, in respect to the details of factory work, but they might be benefited by knowing more of the kinds of goods in demand under conditions different from our own, and how the sale of such goods is effected.

To return to the question of our German correspondent,

we may suggest that it would only be fair play to make room in his own factory for an American on the same terms that he wishes extended to his own son in this country. The ultimate tendency of such a reciprocal course would be to put the industry on a higher plane in both countries.

THE WORLD'S CONSUMPTION OF RUBBER.

A NY statement of the amount of crude India-rubber consumed must necessarily be based largely upon estimates. The best that can be done, in most cases, is subtract the volume of exports from the imports into a given country for a given period of time, and assume that the difference has entered into consumption. While the official statistics of some countries are compiled with care and published promptly, this is not true of some other countries. We are in receipt of an inquiry as to the extent of the rubber consumption for the whole world for the past year, on such a basis as will enable a comparison to be made with former years. Without waiting to collect further details than happen to be at hand at the moment, the following figures are offered—together with an explanation of the source of each item presented—which are believed to form a more correct statement than has appeared elsewhere for the years to which they relate. The figures denote weight in pounds:

COUNTRIES.	1897.	1898.	1899.
United States.....A	39,062,050	41,316,796	51,606,737
Great Britain.....B	17,836,896	21,809,536	16,075,584
Germany.....C	13,848,780	16,855,080	18,663,700
Russia.....D	14,572,280	16,159,360	16,500,000
France.....E	5,447,607	5,447,607	5,447,607
Italy.....F	808,560	808,560	808,560
Canada.....G	2,014,896	2,457,321	2,211,321
All other.....H	2,500,000	2,500,000	3,000,000
Total.....	96,091,069	107,354,260	114,313,509

NOTES.

- A. Excess of Imports over Exports for calendar years, according to Treasury Department statistics.
- B. Estimates of consumption for calendar years by *The India-Rubber and Gutta-Percha Trades Journal* (London), March 5, 1900.
- C. Excess of Imports over Exports for calendar years, according to the Imperial Statistical Office.
- D. Statistics of total Imports for 1897 and 1898 supplied to THE INDIA RUBBER WORLD by M. de Routsakovsky, financial agent for Russia in the United States; figures for 1899 estimated; it is assumed that any exports from Russia have been immaterial.
- E. The annual average excess of Imports over Exports for calendar years for seven years past, according to M. Ernest Chapel, of Paris; it is probable that the consumption during the latter portion of this period has been above the average.
- F. The average annual Imports by Pirelli & Co., manufacturers at Milan, for calendar years.
- G. Imports entered for home consumption, for fiscal years ending June 30, according to the Ministry of Customs.
- H. Allowance for Austria-Hungary, Norway and Sweden, Switzerland, Japan, and Australia, for which no recent authentic statistics are available.

These figures embrace all the various grades of gum known commercially as "India-rubber." They also embrace Gutta-percha, except in the case of the United States and Great Britain, the latter of which is the principal consumer of all the Gutta-percha produced. For the reasons stated in the "Notes" the consumption reported for France and Italy probably has been greater than the figures given would indicate. At the same time a total of 3,000,000 pounds may be too liberal an estimate for the countries not enumerated in the table.

The advance of Germany to second place among rubber consuming countries is a matter of interest to the other countries whose relative importance in the trade is thereby menaced. The development of the rubber industry in Russia deserves also to be considered in estimating the future of the industry, in the light of the marvelous industrial development which is now in progress in the Czar's realm.

Of more direct interest to the rubber manufacturer in whatever country is the consideration that the consumption of rubber must inevitably increase, rather than decline, while there are manifold restrictions upon an increase in the production of this commodity, so that a substantially lower level of prices for the raw material within our era appears improbable, if not impossible.

WHY NOT TELL THE TRUTH ABOUT RUBBER PLANTING? Ultimate success in this industry must depend upon getting at the facts in the case and shaping the business accordingly. It is therefore to the interest of all who are engaged in an honest attempt to promote the cultivation of rubber trees to discourage the unfounded statements by means of which advantage is being taken of the uninformed to induce them to invest money in impracticable rubber schemes. Otherwise the number of deceived and disappointed investors may become so great as to create a prejudice against rubber planting as a whole, regardless of the indications which exist of the possibility of successful and profitable planting under sound conditions. We notice, for example, that free and unwarranted use is being made, in the prospectuses of many so-called rubber planting companies, of the name of the late Señor Don Matias Romero, some time Mexican ambassador at Washington, who really did feel a deep interest in the subject of developing the cultivation of rubber trees in his country. But he was not, at the time of his death, deriving an income of \$1,000,000 a year from rubber plantations. He never did, at any time, derive one cent from any such source. Señor Romero was in correspondence with THE INDIA RUBBER WORLD office for several years, during which time he never so much as intimated that he owned a rubber tree. He did, back in 1873, investigate the subject of rubber planting, and wrote an essay on the subject, which, just before his death, was reprinted in a volume containing some other essays, new and old, and which he was careful to explain was mere "guess-work" so far as the profits from cultivating rubber were concerned, for the reason that he was a pioneer writer in the field and had no data on which to base estimates. Señor Romero, in 1873, also planted "about 100,000 trees" (*Castilla elastica*), about which he remarks, in his book "Coffee and India-rubber Culture in Mexico" (page 374):

In 1875 my trees were prospering and in a very satisfactory condition; but as I had to abandon the place at that time [to return to public life], when the trees developed the natives tapped them, destroying them as they do with the large wild trees, and I could not therefore have the advantage of the experience drawn from my plantation.

We believe that it is not too strong ground to take, to assert that any rubber planting prospectus which bases its estimates and promises on any alleged success of Señor Romero as a rubber planter is thereby discredited as a whole.

THE MACKINTOSH SITUATION, AS A GENERAL THING, seems to show a pretty fair measure of improvement, as the tide which set very strongly towards men's goods entirely, seems to be effectually stemmed. It is probable to-day that three quarters of the goods sold are men's goods, and this is due very largely to

the popularity of the "storm skirt," which more than anything else stopped the sale of ladies' mackintoshes. The storm skirt, however, has seen its day, and ladies are turning again to mackintoshes and cravettes for protection against rain. Speaking of cravettes, the mackintosh manufacturers have had no easy work in getting out these garments in such shape that they will suit a fastidious public. A double texture garment is given enough of an artificial body to keep it in shape, but certain cravette goods, unless they are made up by expert tailors, pull in the making, and do not fit anywhere. The more enterprising of the mackintosh people, therefore, have employed tailors and have thus succeeded in overcoming this difficulty. As a matter of fact, this condition of affairs is not without its compensation, for wherever extra skill is needed, or special difficulties met, there is the valuable market and the added profit. A curious feature of the mackintosh business to-day is that the garment is no longer made solely for the well-to-do. On the contrary, it is fast becoming the poor man's garment, particularly in the south and west, where mackintosh coats really have supplanted the overcoat. The reason for it is the fact that at a close price a very fair appearing box coat is sold for from \$2 to \$2.50. An overcoat that would look exactly like it, and would afford less protection against cold and rain, would cost \$5. The poor man, therefore, prefers the former, and, instead of buying the cheap black \$4 overcoat, as he did formerly, he gets a cheap black double texture for \$1.50. How the American mackintosh has grown in favor with the masses is instanced by the fact that a mackintosh expert recently estimated that last year's production—practically all for home use—was over 5,000,000 garments.

MRS. EMILY CLEMENS PEARSON died of pneumonia at her home in West Medford, Mass., on March 17, at the age of 82 years. For several years prior to her death she was the oldest living pupil of Mary Lyon, the founder of Mt. Holyoke Seminary. Through her mother, she was a lineal descendant of Abraham Pierson, the first president of Yale College. As principal of the young ladies' department of Rochester Collegiate Institute, she took high rank as an educator. Later, during the anti-slavery agitation, she was a frequent contributor to William Lloyd Garrison's paper, *The Liberator*. Her books, "Letters from Virginia," "Plantation Pictures," "Ruth's Sacrifice, or Life on the Rappahannock," had a wide circulation and a marked effect in shaping public sentiment on the slavery question. She wrote many other books, the most notable of which was a historical romance entitled "Gutenberg and the Art of Printing," that is still by far the most interesting pen picture of the life and times of the father of printing. She was a prolific short story writer, and the author of many hymns that are sung in Protestant churches. She was one of the founders of the Boston Young Woman's Christian Association, and of the Woman's Board of Foreign Missions. Of the four children who survive her are Helen Pearson Barnard, a well known writer of short stories, and Henry C. Pearson, editor and publisher of THE INDIA RUBBER WORLD.

THE INDIA RUBBER WORLD has a telegram from Akron, Ohio, stating that the Alden Rubber Co. have acquired control of a new design wireless solid rubber vehicle tire which they expect to manufacture in large quantities.

QUARTERLY dividends of 1½ per cent. on the preferred stock and 2 per cent. on the common stock of the American Chicle Co. are payable April 2 to stockholders of record March 29.

THE NEW ENGLAND RUBBER CLUB.

THE association above named is the outgrowth of the occasional gathering of some twenty men belonging to the rubber trade of Boston, who have been called together from time to time, usually to take action on the death of a notable rubber manufacturer. In January of the present year, after such a meeting, it was decided to form a permanent organization that should embrace all of the leading rubber manufacturers in the New England states, and further, that jobbers and retailers of rubber goods and importers of crude rubber should be eligible for membership. There are in New England about 120 rubber manufacturers in all branches of the trade, and as many more prominent wholesalers and retailers. There is, therefore, abundant material from which to form an excellent organization.

The purpose of the club is purely one of social intercourse among gentlemen connected with the New England rubber industry. It will, however, have a large honorary membership, which will consist of rubber manufacturers in other parts of the world, and it will put itself in communication and exchange courtesies with organizations like the German, British, and French rubber manufacturers' associations. Prominent members of the New England trade took an active interest in the club from the start, with the result that a temporary organization was effected and the following officers elected:

President—Henry C. Morse (Revere Rubber Co.)

Vice President—A. W. Stedman (George A. Alden & Co.)

Secretary—Henry C. Pearson (Publisher INDIA RUBBER WORLD).

Assistant Secretary—W. H. Gleason (Revere Rubber Co.)

Treasurer—George P. Whitmore (Boston Belting Co.)

Directors—L. D. Apsley (Apsley Rubber Co.), Charles H. Arnold (Reimers & Co.), Arthur W. Clapp (E. H. Clapp Rubber Co.), T. J. Skinner (Stoughton Rubber Co.), C. T. Small (Franklin Rubber Co.), William J. Cable (Cable Rubber Co.)

These officers were elected to serve until the first annual meeting, which will be held the third Monday in April. Committees have also been chosen for the annual dinner to take place on that date, for entertainment, etc. Within a week after the organization had been effected, nearly fifty members had been added to the membership, and the roll is rapidly growing larger, there being now seventy-two enrolled.

The present plan is to have two general meetings and dinners a year, and to have entertainment in the way of speeches and features of special interest that shall make each occasion one that will long be remembered by all who are in attendance. The cost of the club to individual members will be extremely light—the initiation fee being but \$5.00 and the annual dues a like amount.

SOME WANTS OF THE RUBBER TRADE.

INQUIRIES.

[95] **A**N inquiry says: "Please give us a list of manufacturers of hard rubber specialties; also hard rubber sheet, tubes, and rods."

[96] "We wish to correspond with parties who make molds for use in manufacturing rubber—particularly for horseshoe pads and the like."

ANSWERS.

[98] The Jerauds Manufacturing Co., No. 27 Murray street, New York, inform us: "We notice in your March issue a request for makers of metal shutoffs for fountain syringes, and in reply thereto would say that we make large quantities of these goods for the manufacturers of druggists supplies."

THE INDIA-RUBBER INDUSTRY IN EUROPE.

From the Viewpoint of an American.

FIFTH LETTER.

Importance of the Caoutchouc Industry in France—Comparisons with the Industry in Other Countries—Some of the Leading Firms—Representatives of Foreign Rubber Concerns in Paris—Rubber Footwear—Druggists' Sundries—The Paris Exposition.

WHILE the production of rubber goods in France is an item of importance in the combined industries of that country, in total volume it falls far below that of some other countries in Europe, to say nothing of the United States. But then the industrial production of France as a whole is relatively small. The rubber industry here has a certain importance, however, apart from the mere matter of volume. It was a French scientist through whom the first published accounts of what we call India rubber reached the world. It was through the same channel that the name "caoutchouc" became established; French chemists were the first to investigate the properties of the new material; and, though the great practical development of the rubber industry has been based for the most part upon beginnings made elsewhere, the manufacturers of France always have endeavored to supply the home demand for rubber goods, which embraces about everything made of rubber. France has led the world in the purely scientific treatment of rubber, as evidenced by various memoirs on the subject in the transactions of the Academy of Sciences. Many of the suggestions contained in these volumes have proved of practical value, but while people elsewhere who handle rubber with a view to making money out of it have been designing and inventing tires, the *savants* of the Academy have been determining, for example, that if atmospheric air were resolved into its separate component parts, and inner tubes were pumped up with nitrogen alone, that element would escape less readily through the rubber, and we should have less trouble with porousness. Without disparaging science, it is easy to see under which method of treatment the development of the rubber industry will be most rapid. All of this does not imply that the French have not succeeded in making pneumatic tires, for I shall show presently that they have. One other respect in which Frenchmen have been quite active is in relation to the planting of India-rubber in their colonies, and the investigation of the extent of supplies of Gutta-percha. Furthermore, the prominence given to Caoutchouc and manufactures thereof in the great expositions in Paris, from 1855, when Charles Goodyear made so notable an exhibit there, has aided not a little in acquainting the world with the various applications of this substance, and in stimulating the competition of inventors and manufacturers. On the whole, therefore, France has sustained a very important relation to the India-rubber industry and trade.

* * *

THERE is a considerable number of rubber factories in France, but few of them would be considered large, either in America or in most European countries where this industry has a footing. Taking into account the comparatively small dimensions of these establishments as a rule, and the fact that many of them undertake to produce a large variety of goods, it will be seen naturally that the scale of production must be too small, in many cases, to permit of successful competition with the products of countries where different conditions exist. The point was made by an engineer with whom I talked that the limited

production in each line of some of the factories which were equipped for making a variety of goods resulted in so small a measure of profit that the proprietors did not feel able to introduce from time to time the new and improved forms of machinery needed to place them on a plane of equality with their competitors abroad.

* * *

I HAVE had neither the time nor the opportunity to study conditions of factory management and other details sufficiently to justify any definite opinions as to the capacity of Frenchmen in the manipulation of rubber. What I have been able to observe here in regard to industrial matters in general, however, confirms the view often expressed by foreigners that the people of this country have developed less aptitude in many forms of production than is to be found in some other parts of the world. In the manufacture of goods embodying artistic conceptions the French hold, of course, a very high position, and justly so. But rubber hose and belting and tires depend for their value upon other than artistic elements, so that, in order to maintain any sort of position as rubber manufacturers, the French have had recourse to a protective tariff to limit the importation of competing goods, while the patent laws have also been framed with the same end in view. That is to say, a patent granted under the French laws affords no protection to a foreign invention, unless the article should actually be manufactured in France. This is why The India-Rubber, Gutta-Percha, and Telegraph Works Co., Limited, of England, in order to increase their business in this country, have established works at Persan, Beaumont; likewise why a factory has been established here for making the Kelly-Springfield solid rubber vehicle tires, an American invention. It is not requisite, however, that the whole volume of goods offered under a French patent shall be of French manufacture.

* * *

ONE of the more important French firms in the rubber industry is Michelin et Cie., with factories at Clermont-Ferrand, whose establishment, through several changes, dates back to 1828. They make a large variety of goods, but have become known to a particularly wide extent through their pneumatic tires, of the detachable variety, first for bicycles and latterly for vehicles as well. Indeed, "Michelin" and "pneu" are almost synonymous terms in Paris. With the co-operation of other French manufacturers, Michelin et Cie. attacked the validity of the French patents on the Dunlop tire with such success that the manufacture of tires of this type is now open to the public in this country. The great development of automobileism here has led to a new demand for pneumatic tires, in the supplying of which the Michelin firm have had a good share. The establishment of Hutchinson et Cie., with a factory at Langlée, possesses some interest for Americans for the reason that it was founded by an American. I refer to the late Hiram M. Hutchinson, who, after having been engaged in the rubber shoe industry in Connecticut and New Jersey, organized more than half a century ago a company to buy and work the rights for the European continent under the rubber patents of Charles Goodyear. The factory then established is still controlled by Mr. Hutchinson's descendants, together with branch factories of a later date in France and Germany. Their production, by the way, is no longer confined to rubber footwear.

The Hutchinson company is now capitalized at 3,250,000 francs. Two important concerns which make a specialty of waterproof goods—and this is one of the leading branches of the French rubber manufacture—are Torrilhon et Cie. and A. Maurel et fils. The Silvertown company's French plant I have mentioned already. The firm of Bapst et Harmet operate the works in Paris which from 1878 to 1889 were controlled by the Maison Lejeune-Chapel. Readers of THE INDIA RUBBER WORLD are familiar with the name of M. Ernest Chapel, secretary of the Syndicat professionnel des Caoutchouc, Gutta-percha, etc., and author of the work "Le Caoutchouc et la Gutta-percha." Since retiring from the manufacture of rubber goods M. Chapel has not lost his interest in the trade; on the contrary, he is now conducting two stores for the sale of India-rubber and Gutta-percha goods and electrical installations. His former establishment did a large business in rubber balls and toys, the production of balls alone reaching nearly 2,000,000 in a single year, which at that time was considered a large figure. The Société Industrielle des Telephones, with factories at Bezons, Grenelle, Paris, and Calais, for the production of insulated and other electric wires, are capitalized at 18,000,000 francs. Some other French rubber concerns are Falconnet, Perodaud et Cie., who are interested in tires; Schoenfeld frères, who were the sole licensees for Europe under the "Alpha" syringe patent (an American invention); H. Morel; Henry Hamelle; L. Edeline, another important figure in the tire trade; and F. Cassassa fils et Cie.

* * *

PARIS is such a cosmopolitan market that one is not surprised to find here representatives of rubber manufacturers in nearly every other country, for the sale of their goods not only in France, and to "all the world" when it comes to Paris, but also to the French colonies, and through such channels of international trade as have their fountain head at French ports. Thus a branch in Paris of a notable German manufactory is described as being "for France and Export," and the representative of another German rubber firm informed me that their trade with Mexico was carried on through their agency in Paris.

I have before me a list of various foreign rubber manufacturers who maintain a representation in Paris, covering nearly every branch of production in rubber goods. It includes the important Italian firm of Pirelli & Co., of Milan; seven large German concerns and some smaller ones; such British concerns as the North British Rubber Co., the Macintoshes, Warne & Co., David Moseley & Sons, and W. & A. Bates; the two principal Russian rubber factories; and, in a lesser degree, certain American firms. Mr. Henry P. Moorhouse, who came here from the United States more than twenty years ago, has been engaged ever since in the sale of American rubber goods, having the representation in Europe for one or more lines of each of several companies.

* * *

WHILE all these representatives of foreign houses find a reason for their existence here, in the share of the French and colonial and export trade which they are able to command, the extent of the imports of rubber goods for French consumption is more than offset, probably, by the exports of French manufactures of rubber. Even where French goods cannot withstand foreign competition in the home market, they may still find a sale in markets abroad in which French merchants happen to have some advantage. When it comes to rubber toys, the French are in a very favorable position. The total imports include not a little rubber thread, and the exports a considerable amount of elastic goods, into which this thread enters.

THERE is reason to believe that the wearing of rubber foot-wear is on the increase here, and I have been assured that the fact offers an opportunity for American manufacturers, owing to the fact that less care has been taken in France than in the United States to produce rubbers of light weight, good fit, and attractive appearance.

* * *

ON the Avenue des Champs-Elysées I saw an extensive chemist's shop known as the "Pharmacie Anglaise," while the windows bore signs (in French) reading "Pharmacists to the Ambassadors of Great Britain and the United States," together with the arms of these two countries. This is one of two stores in Paris controlled by an English proprietor and devoted largely to the custom of English speaking people. While apparently well stocked with all the other articles which one would look for in a store of this kind, there were practically no rubber goods in sight. In response to an inquiry on this subject the manager informed me that they did not think that rubber goods "looked nice," and they were therefore kept under cover until called for. While Parisians, like other Europeans, are disposed to go to the rubber shop as a rule for their requirements in rubber, the chemists do sell a good deal in the way of druggists' sundries. The rubber goods sold in the "Pharmacie Anglaise" were mainly of British manufacture; there were none from Germany and very few from the United States. Many of the articles were labeled "S. Maw, Son & Thompson," the name of an important jobbing concern in druggists' supplies in London. Both here and in Great Britain I have found that such goods are generally bought from jobbers, and even in London I talked with retail shopkeepers who supposed, when buying from Maw, that they were buying direct from a manufacturer.

* * *

THE rubber trade here appears to share the interest which all France feels in the coming Exposition, and doubtless will endeavor to make a creditable display. As I write this, in advance of the opening, there is every evidence that the Exposition of 1900 will prove a notable success, in face of the record of its predecessors in Paris. But I cannot learn that the rubber manufacturers of any other country intend participating to an important extent, with the exception of the big Russian companies. Those who remember how far the exhibit of the Russian-American India-Rubber Co. outclassed everything else in its line at the Chicago World's Fair seven years ago will look with interest for their display at Paris. The "Prodvodnik" company, at Riga, also expect to make a striking exhibit.

* * *

THE duties on manufactures of rubber goods imported into France are stated below. American rubber goods are liable to the higher rate, and these are among the articles considered in the negotiation of the pending commercial treaty between the United States and France. The duties are stated in francs per 100 kilograms:

	General Tariff.	Minimum Tariff.
Sheets of pure rubber unvulcanized and rubber thread vulcanized.....	60	40
Elastic tissues	250	200
Tissue covered with rubber specially for card cloth.	90	70
Waterproof clothing.....	300	250
Boots and shoes lined with felt, wool, or wool mixed with stuffs	150	100
Boots and shoes lined with stuffs of cotton or flax.	120	80
Belting, hose, valves, and other articles of India-rubber or Gutta-percha.....	90	70

These figures were kindly supplied to me by Mr. Moorhouse, whom I have mentioned above.

H.H.

TRANSPORTATION OF SEEDS OF THE "CASTILLOA ELASTICA."

By Francis Child Nicholas.

OF the many rubber producing species, the *Castilloa elastica* appeals most strongly to the interest of the intending planter, especially in the United States, on account of its rapid growth in regions comparatively accessible, and under conditions favorable for the settlement of white men. The tree is a prolific producer of seeds, but on account of their perishable nature planters have found difficulty in getting them to germinate except in the vicinity of their origin.

During the spring of 1899 the writer undertook to establish a plantation of rubber on one of the properties belonging to The South American Land and Exploration Co., Limited, on the northern coast of Colombia, within easy reach of the island of Trinidad, whence it was proposed to obtain the seeds required. Before seeding time, however, the British government decided that no further sale of rubber seeds for export should be made from the gardens in Trinidad, and it became necessary to obtain our supplies elsewhere. The next nearest point was in Costa Rica, which involved a trip of three weeks, whereas these seeds, under the most careful management, rarely have been preserved for this length of time.

My experiments with various kinds of seeds had convinced me that fermentation, mold, drying out, and germination before planting were one or all of them the cause of loss in shipping rubber seeds. Of these various causes, fermentation seemed likely to prove most disastrous, though I found later that germination before planting caused the greatest percentage of loss. As a result of my experiments I have become convinced that the seeds of *Castilloa elastica* can be transported for long distances, making it possible to plant this species successfully wherever natural conditions are favorable for its growth.

The *Castilloa elastica* is diosicious, and on the seed bearing trees a collection of compound fruits is developed rapidly in May and June. These fruits are compact together on disks formed by leaf scales, set one over another. The disks appear at the leaf joints, face downward, setting close to the under side of the small branches, many of which fall to the ground after the seeds have ripened fully. The fruits, which are of a bright orange vermillion, in sharp contrast to the velvety green of the leaves, adhere to the disk, and the group, when secured, with the ripened center of bright vermillion fructs, surrounded by a margin of lighter colored leaf scales, is suggestive of a delicate confectioner's tart. The better formed fruits contain the seeds, and a disk will bear from one to thirty or more, about the size of an orange seed with the outer skin peeled off. The veins of the cotyledons contain a small quantity of bitter fluid, resembling in appearance the milk from which caoutchouc is obtained. The cotyledons are well developed and are folded together to protect the embryo and radicle, the whole being covered with a fine membranous skin. Germination is so rapid that I have often found seeds developed through their first stages, with rootlets and a pair of tiny green leaves, before the first disk had fallen to the ground.

The fruit disk falls when fully ripened, sometimes bursting and scattering the fleshy fruits for a foot or two around, but oftener the fruits do not scatter, but form a sodden little mass among the fallen leaves and mosses, where the seeds ferment and soon decay. Where the ground is favorable, and if the fruits be properly broken apart, the seeds begin to grow imme-

dately, but more frequently, before the soil is reached through the carpet of leaves, moss, etc., the roots lose vigor, dry up, and die. This is one reason why *Castilloa elastica* trees are found in groups, occupying the more favorable spots, instead of being distributed evenly throughout the forests in which they exist. Once started, the growth of the *Castilloa* is most vigorous, but under ordinary conditions propagation is not very free, and, unassisted, it is probable that rubber forests, once devastated, would never reproduce themselves.

In operating in Costa Rica, I soon decided that it was useless to try to take any but fresh seeds, secured from the trees, or such as had not lain on the ground for more than a day. All the various plans for packing the seeds suggested by persons having any experience were tried. The seeds packed pulp and all in bags proved a total loss, the pulp fermenting freely and turning acid, and involving the decay of the seeds. Such seeds as were separated from the pulp and allowed to dry slowly in the shade gave somewhat better results, but mold developed in the particles of pulp that remained and spread vigorously, causing a heavy percentage of loss. Some of the seeds were packed separately in pieces of paper and then placed in boxes, but they were a total loss.

The plan that did prove a success was this: I first selected fine specimens of fresh seed—for all are not of the same size and do not produce equally vigorous plants—being careful to separate from them any that had sprouted or showed signs of decay. They were then cleaned carefully by washing away the particles of pulp in cold water. The cleaned seeds, looking like little nuggets of ivory, were spread on cloths and allowed to dry in a cool room for six hours. They were then packed in sand, just damp, but nothing more, with which had been mixed wet charcoal in the proportion of 10 or 15 parts to 100 parts of sand. The object of the latter was to check fermentation and mold. The sand, by the way, was carefully washed before use. About 1000 seeds were packed in a tin box $4 \times 3 \times 2\frac{1}{2}$ inches in size, but they were rather crowded; 500 seeds to the box would have been better. In packing the seeds, I first laid a piece of flannel at the bottom of the box, then spread a layer of sand and charcoal, then a layer of seeds, covering them with more sand and charcoal, being careful that none of the seeds should touch the sides of the box. I found while transporting the seeds that in boxes where the sand was over damp heating had set in, but this was checked by making holes in the lids of the boxes to admit the air. In these cases there was some loss, ultimately. My experiments in Costa Rica have proved successful on the whole, since I have tens of thousands of young rubber trees as a result of bringing seeds from Costa Rica. This brief record is offered here for the reason that the same methods may prove valuable in other cases. The principle upon which the whole is based is that the packing of the seeds for a long journey must be designed to assist nature in protecting the seeds, or perhaps to provide them with surroundings for their protection which, because of their superabundance, nature has left unprovided.

The unfavorable conditions to be overcome in handling the seeds of the rubber tree may be briefly summarized under the following heads:

I. The tendency of the fruit to ferment, involving the seeds in the decomposition.

II. The fermentation and decay of the seeds themselves, if piled together, even if freed from the pulp.

III. Premature growth. If the seed does not grow it dries up, and the planter must retard the growth while yet providing moisture enough to preserve the vitality of the seed until it can be planted.

IV. The tendency of the seed to mold. The appearance of a dead white speck at the apex of the seed, in sharp contrast

with the ivory like appearance of the outer skin, is a sure sign that it is lost, though otherwise it may appear in perfect condition: One bad seed will ruin a thousand good ones brought into contact with it.

V. The liability of the seeds to dry up, the outer skin becoming separated from the cotyledons, after which the value of the seed is doubtful.

No. 23 Beaver street, New York, March 2, 1900.

RUBBER SHOE STYLES FOR 1900.

STYLE in rubber footwear is a factor to-day equalling if not eclipsing the importance of the trade mark in determining at which factory the dealer shall place his order. Appreciation of this truth has gradually developed among the managers of the great companies, who have been puzzled to know the cause of accumulations of "out of style" goods, with the attendant auction sales in years past. Now the most enterprising of them have each placed this vital detail of style in charge of a competent man, besides making him responsible for the production of the factory with which he is connected. The numerous new concerns starting cannot appraise this feature too highly, since the older companies have paid dearly to learn that a rubber is made to go over a leather shoe, instead of the leather shoe being made to go into the rubber.

Little choice exists in the matter of wearing qualities among the standard brands. They are practically of uniform excellence so far as compounds go, but in style, fit, and finish there are all the variations incident to the products of any industry in which factory superintendents range from those who "know it all," who are ultra conservative, or who admit that the world changes and who appreciate that the one who most quickly and skilfully adapts his product to the varying demands is the one who gets the cream of the trade and the prestige incident to his enterprise. A rubber shoe may look stylish and please the eye, and yet not fit. The artist who can design a shoe which blends the essentials of style and fit with structural strength is the king pin in a rubber factory.

The "razor," "needle," and "piccadilly" toes of two seasons ago are such curios to-day in rubber shoes that a few survivors of those once all-popular styles which turned up at the recent auction sale in Boston made people smile. Common sense, so often uncommon, now seems to regulate more than ever the styles on leather shoes. Not only have the pointed toes vanished, but it is extremely doubtful if their opposite, the wide extension edges, will be seen on either men's, boys', youths', women's, misses', or children's shoes after this spring. The tendency is already quite pronounced towards closer trimmed soles. Thinner soles are also expected on men's shoes. The mannish shoes for women, purchased with the expectation that they would render unnecessary the use of rubbers, have been found wanting in protection from dampness in rain and snow, and many women are disappointed at having worn ungainly looking shoes with no compensating advantages. Rubbers have had to be made for these extreme shoes just the same as for ordinary shoes.

The extremely crooked last has also had its day. From men's down to children's shoes the tendency is away from the crooked last to one following the natural formation of the foot, with roomy toes and a distinct but not accentuated swing. Boys', youths', and the smaller sizes of men's shoes are more plump over the instep than formerly. In misses' and children's

spring heel shoes there is also a compromise growing in favor, with a result between the crooked "British" style last and the straight "opera" last. The toes, too, are quite broad and square looking in some instances. The right and left feature on children's rubber shoes is apt to prove troublesome, owing to their not always getting the rubbers on the right foot. Still the fine trade is demanding these medium toe, right and left rubbers, although some buyers prefer the "opera" straight last as the safer with children.

Consumers now insist on rubbers fitting like gloves, and they are right in their demands. No rubber can wear well if it has not the proper fit. A rubber strained to cover a leather shoe is certain to break. It is the same if the edge of the leather sole extends over the rubber sole. Retailers would save themselves much trouble if they compelled their clerks to fit properly all the overshoes they sell. An excellent rule is that made by the proprietor of one of the most successful retail shoe stores in Boston. When a rubber shoe is brought back by a customer, with complaint of unsatisfactory service, it is carefully examined; if the trouble is due to giving an improper fit, it is charged up and the clerk selling it pays for the shoe. If the brand a dealer carries does not fit his lines of leather shoes he cannot change his brand of rubbers too soon.

Clogs are coming into favor again, and yet there is not on the market to-day a properly constructed clog. This defect will be remedied soon, however. The problem is a difficult one with the extremely low cut shoe, but at least one company has mastered it, and its new product will be in the market this spring. The foothold is another old style shoe, with many of the special advantages of the clog, that is again coming into favor. More goods of this style were sold in 1899 than for some years past. Formerly it was a great favorite.

Style, fit, and finish are factors in the making of rubber shoes of no less importance than the character of the compounds used in the mixing room. The novice who thinks it easy to master these essentials for a rubber factory and goes to making shoes will find sooner or later that the economical production of satisfactory rubber footwear is a rare art.

SHOE LASTS OF HOLLOW GLASS.

AN interesting invention in the line of rubber shoe manufacture is the Bronson Hollow Glass Last, which was the subject of a recent patent. The Bronson Brothers have a small factory at Beacon Falls, Conn., not far from the plant of the Beacon Falls Rubber Shoe Co. They have succeeded in making a last which, when annealed, is tough enough for ordinary service. The problem which now confronts them, however, is that of making the innumerable shapes and sizes that are needed to equip the modern shoe factory.

A NEWSPAPER mentions, as a novelty in the rubber industry, a tubular sack manufactured expressly for the protection of horses' tails from wind and rain in wet weather.

GUTTA-PERCHA AND THE PROPOSED PACIFIC CABLE.

SOME facts of interest relative to the cost of construction of ocean cables are contained in a communication to the senate committee on naval affairs by Mr. Harrington Emerson, of Philadelphia, who favors what he calls the northern route for a cable across the Pacific. Instead of going by way of Hawaii and the Philippines to reach Asia, he favors connections to Alaska, Siberia, Japan, and the Philippines, for the reason, among others, that thereby shorter stretches of cable will be needed than under any other plan that has yet been suggested. No matter what plan or route may be adopted, several stretches of cable will be necessary, and every one of these stretches varies in length. "If economy is an object," says Mr. Emerson, "each stretch requires a different type of cable." In other portions of his report Mr. Emerson says: "A standard modern cable with a speed of 40 words a minute must have a core of 500 pounds of copper and 320 pounds of insulation [per mile] on a stretch of 2200 miles. . . . A cable of 107 pounds of copper and 140 of insulation is the standard for distances up to 1000 miles."

From other portions of Mr. Emerson's communication, a copy of which THE INDIA RUBBER WORLD has been privileged to see, in advance of its publication as a "Senate Document," the further figures which follow have been compiled:

"On the southern cable route, via Midway, the links are:

	Miles.	Copper.	Gutta-percha
San Francisco to Hawaii.....	2390	500 lbs.	320 lbs.
Hawaii to Midway.....	1311	250 "	250 "
Midway to Guam.....	2638	650 "	400 "
Guam to Luzon.....	1564	300 "	300 "
Total and average.....	7903	470 lbs.	330 lbs.

"The 1894 Anglo-American cable, with a length of only 1850 miles, and with 650 pounds of copper and 400 pounds of Gutta-percha, gives a speed of 47 words a minute."

On the basis of the figures given above for the Hawaiian route, there would be required a total of 3,700,000 pounds of copper and 2,600,000 pounds of Gutta-percha. On the northern route, according to Mr. Emerson, for the longest stretch the standard type is 107 pounds of copper and 140 pounds of Gutta-percha per mile, which could probably be reduced to 107 pounds of copper and 120 pounds of insulation per mile. "The larger figures give a total of 454,000 pounds of copper and 686,000 pounds of Gutta-percha, or one-eighth as much copper and one-quarter as much as insulation as the route via Hawaii."

"It is here to be noted," says Mr. Emerson, "that India-rubber is quite as good an insulation as Gutta-percha on cables not exceeding 1000 miles. The Great Northern Telegraph Co., which owns and operates over 7000 miles of cable, half of it in Asiatic waters, uses rubber almost wholly. Gutta-percha is used [by them] on long, and very deep sea cables."

Mr. Emerson's report contains the following statement of details of the construction of other important cable lines which are of interest in connection with the cost of cables:

The 1894 Mackay Bennett cable, 2200 miles long, is made up of an average of :

Copper.....	500 lbs., worth.....	\$ 100
Gutta-percha.....	320 " "	640
Jute	585 " "	60
Steel	3054 " "	300
Compound	1100 " "	110
Total.....	5556 " per mile.....	\$1210

The Penang and Rangoon cable, 583 miles long, is made up of :

Copper.....	107 lbs., worth	\$ 22
Gutta-percha	140 " "	280
Jute	220 " "	20
Compound	660 " "	66
Iron wire.....	2250 " "	112
Total.....	3250 " per mile	\$ 500

It is only fair to state that the Penang cable is an old type made in 1877 and that, in modern practice, rubber would be used instead of Gutta-percha, steel wire instead of iron, reducing the quantity to 1000 pounds, and diminishing also the amount of jute and compound.

"SCARCITY OF GUTTA-PERCHA."

"When the British commission considered the British cable from Vancouver to New Zealand, one of the greatest obstacles encountered was the scarcity of Gutta-percha. The supply of this material is limited, as the trees are destroyed in the gathering of the sap, and each year new sources of supply have to be discovered. As a consequence, quality varies and price is high—over \$2 a pound. Nothing but Gutta-percha can be used on the long stretches of the southern [Hawaiian] route. There is not enough Gutta-percha obtainable to maintain existing cables and provide for either the American or British Pacific cable. The northern route requires only one fourth as much Gutta-percha, but can also use rubber as an equally good alternative, and refined rubber costs but \$1.30 a pound [on the basis of fine old Pará at \$1.10 a pound, crude]. The smaller quantity of insulation required, but a fraction of the annual supply of rubber. . . . would not make it possible to corner the market of insulating material."

Mr. Emerson, in view of what his investigations have brought to light, favors a Pacific cable by the northern route with a wholly independent route from the United States to Hawaii. "On this basis, the combination of Hawaiian and all-American northern route figures out as follows: Total copper, about 2,000,000 pounds; Gutta-percha, about 1,500,000. The types and links of cable are :

STATIONS.	Length.	Copper, per mile.	Total Copper.	Gutta, per mile.	Total Gutta.
United States to Attu	3100	107	331,700	140	434,000
Attu to Isle	2000	400	800,000	360	720,000
Isle to Luzon	1800	130	234,000	130	234,000
Isle to Japan	300	107	32,100	140	42,000
San Francisco to Hawaii..	2300	130	299,000	130	299,000
Total			1,696,800		1,729,000

On the basis of all the computations made Mr. Emerson tabulates the three principal proposals for a Pacific cable as follows, with reference to the requirements for insulating material :

	Copper.	Gutta-percha.
The all American route via Hawaii, and nothing to Alaska.....	3,700,000	2,600,000
The all American route via Dutch Harbor, including separate cable to Hawaii.....	1,700,000	1,720,000
The American Japan route to Manila	500,000	700,000

Our readers who may desire to study Mr. Emerson's proposal for a cable across the Pacific via Alaska, and his contention that this would prove the most direct, the most economical, and the one promising the greatest volume of business, may be interested in an article on the subject in the *Engineering Magazine* (New York) for November, 1899, accompanied by maps and diagrams, and a résumé of the operation of various existing cables.

THE INDIA-RUBBER INDUSTRY IN GREAT BRITAIN.

By Our Regular Correspondent.

AT a meeting of the Manchester section of the Society of Chemical Industry, held on March 2, Dr. C. O. Weber read a paper on the "Nature of India-rubber." The author is well known to be working at the chemical theory of vulcanization, but, as he informed the meeting, the

Nature of India-Rubber. subject has proved one of such great complexity that it may be another two years before he is in a position to publish his results. The present paper had considerable reference to the constitution of colloids generally, and it will no doubt interest many chemists who are not directly concerned with India-rubber. It would be difficult for any one but an expert in organic chemistry to attempt to follow the author in the more abstruse parts of his paper, and there is not much in it that directly interests the practical man. He has determined carefully the amount of substance in Pará rubber which is insoluble in the ordinary solvents and gives the figure 6.5, which differs from what has been published by earlier investigators. This insoluble portion contains a large proportion of oxygen and so differs from the rest of the rubber, which is a hydrocarbon, and it is also quite distinct from the product of decayed rubber, known as "Spiller's resin." This insoluble body does not occur in rubber other than Pará, though he was not prepared to say that the superiority of Pará rubber was due to this fact. The soluble portion of the rubber generally contained about 2 per cent. of oxygen, though he was not able to say in what form it existed. In the table which Dr. Weber gave, containing the results of the elementary analysis of various specimens of raw rubber, it was noteworthy that Ceará rubber contained the most oxygen, though the author did not say whether this had any connection with the rather peculiar nature of this rubber. Perhaps the feature of most practical interest in the paper was the author's eulogium of the vacuum process of drying washed rubber. Dr. Weber has convinced himself of the superiority of this process over the ordinary method of drying by heat, and he says that the rubber produced by the former contains less oxygen and is much less liable to damage by excess of vulcanization than is that dried by heat. A discussion in which Mr. H. L. Terry, Dr. G. H. Bailey, Mr. H. Grimshaw, and Mr. A. G. Green took part, followed at the close of the paper.

To revert to another scientific subject, there is a paper by M. d'Arsonval in a recent issue of *Comptes Rendus* treating

Action of Gases on Caoutchouc. of the action of gases on Caoutchouc. He shows that India-rubber absorbs large quantities of carbonic acid under pressure, and therefore increases in volume, though at ordinary atmospheric pressure the gas is soon given off again. He also shows that the deflation of a rubber tire is due to the fact that oxygen passes through the rubber pretty readily. The chief point about these observations is their doubtful claim to originality, because, as early as 1831, Dr. Mitchell, of Philadelphia, had experimented with rubber balloons and various gases with much the same result. Dr. Draper, of New York, also published an account of his experiments on the same lines, finding carbonic acid to pass through rubber more quickly than any other gas and nitrogen to be the slowest, the ratio being 13 to 1. Dr. Graham, master of the mint in London, published a paper in the *Journal of the Chemical Society* in 1867, entitled "On the Absorption and Dialytic Separation of Gases by Col-

loid Septa," the gist of which went to show that the passage of gases through rubber was not a simple case of gaseous diffusion, but one of liquid diffusion. I cannot go further into this rather complicated subject now, but I have said enough to show that the subject is not by any means a new one. Perhaps its most important technical interest lies in the hollow ball manufacture. Carbonate of ammonia is the chemical commonly used to keep the ball inflated during vulcanization in the mold, and it has been sought on more than one occasion to replace a body containing so much carbonic acid by one which passed less easily through the rubber when the ball went into use. Very little progress has been made, however, in finding a substitute for the carbonate of ammonia; there are few solid bodies which dissociate into two gases on heating, and liquids and gases are troublesome to deal with in practice. There are other cases where a knowledge of the effect of gases on rubber may prove of utility, and I think that no apology is needed for the present reference to the subject.

ALTHOUGH Manchester has good claims to be considered the chief center of the British rubber industry, for other than North British merely geographical reasons, yet the small company of works in the Edinburgh and Glasgow Rubber Co. district are not far behind in point of importance. The largest of these works is that of the North British Rubber Co., Limited, whose retail establishment in Princes street usually arrests the attention of the tourist in Modern Athens by the fact that the pavement in front is composed of India-rubber instead of road metal. The works, which are situated within the confines of the city at Fountain bridge, are on a scale commensurate with the extended reputation of the company at home and abroad, and here the majority of rubber goods are manufactured, with the notable exceptions of elastic thread and hollow balls. Of the five firms making rubber boots and shoes in Great Britain, the North British are by far the largest producers, doing an increasing home trade in these goods as well as competing very successfully with foreign makes in Eastern markets. Naturally a strong feature of their trade is the waterproof, an article so largely in demand in Scotland, and the fishing stockings so indispensable to trout and salmon fishers are a special class of goods for which the firm is noted. It is said that it was the persistent refusal of this firm to enter the late proposed combination of British rubber manufacturers that had a good deal to do with the abandonment of the scheme, and it is easy to understand that the scheme could hardly have prospered if this firm had been left in an independent position. Considering that Scotland is the home of golf and that the game is so generally played there by all classes, it seems somewhat strange that the North British should not touch the golf ball manufacture, but inquiries on the point elicited the same answer from one of the leading officials, as did a similar question put to a large Canadian firm, viz.: "The business is not worth doing; we want to make things that give us some sort of a profit." The firm have made themselves a name of recent years for solid carriage tires, the quality of which it has been the object of firms who have gone into the business afterwards to simulate as nearly as possible. The carriage tire business in England is steadily increasing, but not by leaps and bounds, and this article has for some time now been in greater request in the large towns of Scotland than in

English centers of corresponding population, the main reason for this being that in Scotland the cabs are owned by a number of small proprietors who must all follow a lead in the way of giving increased comfort to their patrons, while in English towns there are generally two or three large proprietors who agree among themselves either to adopt or to neglect any novelty, and in the tire case neglect has proved supreme over adoption.

A FEATURE connected especially with the waterproof trade at the Scotch works is the class of solvent largely used. Here

Solvents in Waterproofing.—the shale spirit which is a product of the paraffin oil industry of Midlothian and Linlithgowshire finds considerable application, the

Broxburn Oil Co. making a special product for this purpose. It cannot be said that this shale spirit ever gained much favor in England, though considerable quantities of it were used at a certain period some years ago when coal-tar naphtha was high in price. From my own experience there were always several objections rightly urged against it, the most prominent of these being (1) its containing some quantity of inflammable vapors given off at a low temperature, thus increasing the fire risk; (2) its unpleasant penetrating smell; (3) its liability to contain a small percentage of heavy oil. Perhaps the last objection is the most serious, and from what I remember of the product of some years ago—which, however, may have been improved at the present time—I should caution intending users of the stuff to be on their guard and to contract for delivery to a fixed standard, especially if the solvent is used for goods which are to be cured by dry heat. The fact that it distills at a lower range of temperature than does coal-tar naphtha is looked upon as an advantage in some quarters, as it enables the spreading machines to be run at a quicker speed, though this property does not commend itself in all applications of rubber varnish. I remember one case in England where a quantity of it had been bought and the buyers were glad to sell it back again at a low figure sooner than use it up, on account of the various defects mentioned, but then it is common enough in the rubber trade to find authorities differing *in toto* as to the utility of this or that material. This shale spirit, perhaps it should be mentioned, is composed of different hydrocarbons to those which go to make up petroleum benzine.

THE North of England cycle and motor show, held at Manchester on February 16 and several ensuing days, was a thoroughly representative one, especially in the

Automobiles and Rubber.—automobile department. Not that there was anything of conspicuous novelty on view, for the majority of the exhibits were old friends. The autocar has not so far come on with a rush in England, but there should be plenty of work for the rubber manufacturer when the large tires which these machines require are in greater demand. At present I understand our manufacturers are somewhat chary about going to the necessary expense as regards mandrels and molds for this class of work until they see that the business is likely to become a regular one. Although the various tire firms were well to the fore in this show, the general rubber manufacture was represented only by the Eccles Rubber and Cycle Co., Limited, who showed a good assortment of their manufactures.

In a recent number of the *Gummi-Zeitung* there appear some remarks on the subject of removing the smell from rubber rings

Odorless Rubber Rings.—and stoppers used in the mineral water industry. The article in question is inspired by one which has appeared in the German organ for the mineral water industry. With regard to this important point, it does not seem that any more progress has been made in Germany than in England, where the matter has long occu-

pied attention. What are called Codd's rings are bought by the bottle manufacturers to insert into the necks of the bottles, and orders for several tons of these rings are placed annually by the different large bottle firms. There is close competition between the leading rubber manufacturers to obtain these orders, though the condition as to the exact tint of red as well as uniform density are apt to prove rather troublesome. If the price paid allowed the use of good rubber we should hear less about the smell, but where African rubber of a low quality has to be used it is hardly surprising that complaints should arise. Not that I think a completely odorless ring will ever be made from rubber, for one cannot well destroy the smell of rubber entirely without at the same time affecting its other properties. I have known people with a superficial knowledge of the subject to produce an odorless ring by treatment with an oxidizing agent, but, as I expected, it was found that the rubber was injuriously affected. The mineral water organ referred to suggests that a prize of £5 should be offered by the trade to encourage experimenters to produce rings and corks free from taste and smell.

THE new company of H. H. Royle & Co., Limited, has just been started in Lower Morley street, Manchester, to deal in

New Firm in Manchester.—waterproof garments, both of the ordinary rubber type and more especially with the water repellent cloth known as "Millerain."

Mr. Royle is the late head of the waterproof department of Charles Macintosh & Co., Limited, and he is assisted in the directorate by Mr. Nadin, late manager of the Manchester town depot and by Mr. J. B. Price, M. I. C. E., for some time manager and engineer of the same firm. It will thus be seen that there is a strong Macintosh flavor about the new concern. With regard to the Millerain cloth, in which the firm expect to do a large business, it is already, I understand, in great favor in London, especially, because the prevailing fashions for ladies waterproofs at the present time are the closely fitting coat which, when made with rubber, is apt to prove disagreeable to the wearer from a hygienic point of view; an objection which was not so apparent in the case of the loose cloak of a departed fashion. Although the military authorities have not yet apparently decided on adopting any of the water repellent porous yet waterproof cloths which have been submitted to them of late years, the Millerain has obtained testimonials from eminent officers in India, where the nature of the monsoon rains renders the test very severe. It is now a few years since Miller patented his process, together with the special rather costly machine by which it is carried into effect. In this patent use is made both of soluble salts and non-soluble waterproof material, the proportions as described in the specification being as follows though it is quite possible that they may have undergone material alteration. The first solution consists of: Aluminum acetate 24 parts, zinc acetate 12 parts, calcium acetate 8 parts, albumen 4 parts; and the waterproof solution through which the prepared cloth then passes consists of paraffin wax 65 per cent., Japan wax 25 per cent., and beeswax 10 per cent.

EARLY in the morning of February 21 a fire broke out in the rubber drying stores of Mr. Frankenburg's Greengate Rub-

Fire in Rubber Works.—ber Works, Salford, and did considerable damage before it was subdued. It is rather unusual for a fire to break out in this department of a works, and I cannot call to mind any similar case. This firm, it is understood, will shortly be converted into a limited liability concern, but only of a private character, such as Macintosh's, and the shares will not be offered for public subscription.

SOME SOURCES OF CRUDE RUBBER SUPPLIES.

EUROPEAN CAPITAL IN AMAZON RUBBER.

In an official report dated January 5 the United States consul at Pará, K. K. Kenneday, writes that the population of that city has doubled within four years, and the commerce of Manáos within two years. He reports the active interest in the upper Amazonian rubber country of a Belgian-French syndicate—the Comptoir Colonial Français, with head offices in Paris and branches at Pará and Manáos, and capitalized at \$2,000,000. They have bought "the rubber estates known as 'Casa do Javary,' comprising twenty-one rubber fields beginning at the mouth of the Itequary river," for 5,000,000 milreis (about \$720,000), of which \$365,000 was paid.

An offer of a similar amount for "rubber districts on the Ituy river, an affluent of the Javary, extending for eighteen miles on both banks of the river," is said to have been refused. Consul Kenneday adds: "Advance agents of a London syndicate with a capital of £10,000,000 are also examining the rubber fields, and others, representing European interests, are to be seen all along the Upper Amazon." He advises American capitalists that this field for investment is worth looking into. The states of Pará and Amazonas had begun work on a land telegraph line, to supplant the unsatisfactory cable up the Amazon, and 180 miles had been completed.

RUBBER EXHAUSTION IN AFRICA.

WRITING from Mlange, British Central Africa, a correspondent of the *Tropical Agriculturist* mentions having on his estate two enormous trees of a species of *Ficus*, which yield rubber of good quality and in large quantity. The tree which he knows as the *Kickxia Africana* "yields rather a sticky rubber, that does not coagulate well." The common rubber vines of the country are the *Landolphia Kirkii* and *L. Petersiana*, but these are few and far between in British Central Africa. "The only rubber exported from east Africa seems to be the produce of these two vines. The natives don't know how to tap the rubber producing trees besides those above named." The writer mentions a very common vine of enormous dimensions—about a foot in diameter is a medium sized one—in which he finds a large quantity of rubber. It simply runs from the vines when cut, like blood from a wound, but on account of its being so sticky the natives can do nothing with it. The writer has coagulated this sap with acid.

"The natives here are very destructive in their method of collecting rubber. They cut down the vines, then cut them in handy pieces and slice pieces out of the bark here and there—of course only getting half the rubber they ought to get—and destroying the vines, which take many years to grow up again. Traders don't instruct natives how to tap trees or vines. All they want is to secure the rubber at as cheap a rate as possible, with the result that there will be no rubber in Africa in the course of a few years. Government should take action in the matter." Some natives complained of by the writer were fined £3 each. They were unconscious of wrong doing, having been sent out by a white trader, who, by the way, will be prosecuted for the destruction of the vines. The same writer mentions 1s. to 1s. 6d. as the price per pound paid by white traders to the natives employed to gather rubber.

In the British Central Africa protectorate regulations for the control of the collection and sale of rubber [Queen's Regulations—"Rubber Regulations, 1899"], have been in force since September 1 last. They require all rubber exposed for sale in

balls to be cut through the center. The collection of root rubber or extraction of rubber by boiling bark, or having in possession any rubber so made, is forbidden. The adulteration of rubber with sand, earth, stones, bark, wood, or other foreign substance, or soaking rubber in water, or dealing in rubber which has been so treated, is also punishable. Any magistrate having reason to suspect that these regulations are being violated may issue a warrant to search the suspected premises. A breach of these regulations is punishable imprisonment not to exceed two months, or a fine up to £100, or both, and any rubber in respect of which the offense has been committed is liable to forfeiture.

GROWING PRODUCTION OF ALMEIDINA GUM.

THE export of "Almeidina" gum, or "potato" rubber, from Portuguese West Africa amounted during the calendar year 1897 as follows:

From Mossamedes.....	79,068 pounds.
From Benguela.....	70,873 "
From Loanda.....	10,104 "

Total...	160,045 "

The value declared for export was 3,515,920 Portuguese reis, or £556 15s. 10d., being less than 1d. per pound. The export for 1898 increased to 219,300 pounds, of which 120,362 pounds were shipped from Mossamedes. The value of exports for 1898 was 4,905,933 reis, or £776 18s. 5d. The latter figures indicate an average export value of about £7 15s. per ton of 1000 kilos. A report by the British consul at St. Paul de Loanda stated that the plant yielding this gum is remarkably plentiful, and predicted an export for 1899 twice as great as for 1898. The juice from the plant is boiled until it hardens somewhat, after which it is made into balls and dried in the sun, the finished product resembling in size and color an ordinary potato; hence the name under which it is sometimes marketed. This gum was first brought to notice about 1881 by Senhor Almeida. It is obtained from the *Euphorbia tirucalli*.

THE WEST AFRICAN ROOT RUBBER.

HERR BAUM, a botanist who accompanied the Kunene-Zambezi expedition in behalf of the Colonial Agricultural Committee [of Berlin] made some inquiries in regard to root rubber. The district in which this plant (from its description probably *Carpodinus lanceolatus*) grows, is situated on the other side of the Cubango, and is so devoid of water that the natives going to the rubber root district have to carry water with them, and return when the supply is exhausted. The rubber is obtained by beating the root sticks, and it is said to be so toilsome that a negro will consume three days' time to produce a piece as large as a banana, and even then it is mixed with sand and splinters of wood. Herr von der Keller, to whom Herr Baum is indebted for this information, asserts that the root sticks, which seldom have a thickness of more than two fingers, contain at least 60 per cent. rubber; also, that they cannot be broken, but can be stretched until torn asunder. In the gathering places the plants are exterminated by the negroes to such an extent, that for many years this plant is not to be seen again. The botanist Schlechter, the leader of the rubber expedition to West Africa, also reports on the root rubber at Stanley Pool [in the Congo Free State], and states that the plant grows on such sandy soil as exists nowhere in the Kameruns, and its cultivation therefore is more adapted to Southwestern Africa than to the Kameruns.—*Der Tropenpflanzer*.

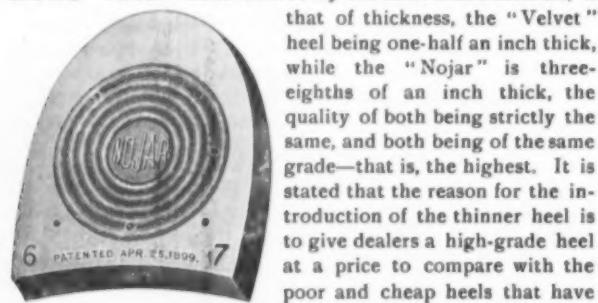
NEW GOODS AND SPECIALTIES IN RUBBER.

UNITED STATES PNEUMATIC HORSE COLLAR.

IN the manufacture of this collar, as described for THE INDIA RUBBER WORLD: "Strength is obtained by bending to the shape of the horse's neck a steel tube which goes inside of the collar and takes the place of the hames used in the old fashioned collar. This is wound with felting to prevent the rubber bags coming in contact with the metal. Back of the felt wound steel tube is placed a pure gum rubber bag which extends completely around the collar, and is made to conform to the shape of the collar. This bag is inflated from a valve in one side of the collar. Between the rubber bag and the leather casing is a piece of felting, to prevent the rubber from coming in contact with the leather. The leather casing, which forms the outside of the collar, is made from one piece of leather, which is lapped at the front of the collar. This point, where the leather joins, is concealed by a metal strap finished in enamel, or in nickel plate, or in silver, as the grade of the collar demands, and through this metal strap goes the screws which holds in place not only this finish strap but also the leather casing. These screws go directly into the steel tube." These collars are understood to have been tested and to be in present use in New York and elsewhere by fire departments and in other branches of the public service, as well as by manufacturing concerns employing large numbers of horses. [United States Pneumatic Horse Collar Co., No. 52 Broadway, New York.]

THE "NOJAR" RUBBER SHOE HEEL.

THE only difference between the new "Nojar" rubber heel and the "Velvet" heels offered by the same manufacturers, is



that of thickness, the "Velvet" heel being one-half an inch thick, while the "Nojar" is three-eighths of an inch thick, the quality of both being strictly the same, and both being of the same grade—that is, the highest. It is stated that the reason for the introduction of the thinner heel is to give dealers a high-grade heel at a price to compare with the poor and cheap heels that have

been put upon the market, which not only give dissatisfaction to the wearer but are bound to injure the trade of the dealer who tries to sell them. With two first quality rubber heels like the "Velvet" and "Nojar" there is no temptation for dealers to attempt to handle low grade goods in this line.

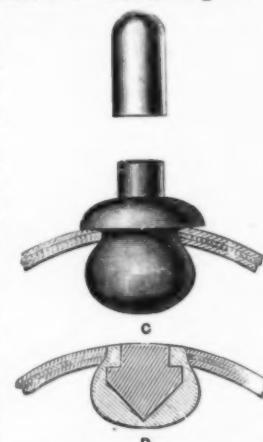
CHASE LEATHER.

IT is a fact well known in leather circles that the supply of good leather is not up to the demand, and that for this reason a variety of artificial products is being more and more used. What is known as "Chase Leather" is one of the toughest and most flexible products that the writer has yet seen. It is made in all colors and of a variety of weights. It has a wide range of uses, as indicated by the fact that one leather man covered a very heavy webbing with it and made a set of harness throughout that is in daily use and doing excellent service. Its more ordinary uses, however, are for book binding, car curtains, upholstery purposes, trunks, bags, pocket books, music rolls, etc. [The L. C. Chase & Co., Boston.]

MOORE'S "DUPLEX" REPAIR OUTFIT AND VALVE.

A DEVICE for repairing pneumatic tires, which should be of especial interest to users of motor vehicles, is illustrated in the accompanying engravings. In using this outfit no vulcanizing is necessary and the tire need not be taken from the rim.

It consists of a duplex umbrella plug and the operation of repairing can readily be understood from the illustrations. Cut A represents the lower part or bushing and upper part or umbrella plug. Cut B shows the bushing inserted through the punctured tire, and umbrella plug, with tin tube over the same. Cut C shows the umbrella plug inserted in the bushing. Cut D shows the flange of the bushing removed, after the stem of the umbrella plug has been cut off. Cement is used both in forcing the bushing through the puncture in the tire, and in inserting the umbrella plug. The plugs are manufactured in three sizes. The same inventor has also brought out a new valve for both bicycle and motor vehicle tires, called the Moore Duplex Valve, that can be inserted without vulcanizing. It has no plunger in the stem of the valve and is open all the way through, the valve proper being a slit cut in the rubber allowing the air to pass in freely. The pressure from the inside prevents its escape. [Ira W. Moore, No. 260 Eighth avenue, New York.]



BAILEY'S FACIAL BRUSH.

IT has seemed hitherto that the Bailey brushes left nothing to be desired in the line of facial or massage brushes made of rubber. Of the hundreds of thousands of people who use them to-day, none has suggested any improvement. The inventor, however, in getting out his facial brush, has surpassed himself. Each tooth, instead of being solid, is a soft flexible suction cup, and in its use on the face there is just enough grasp to take hold of the skin and draw out and round up the hollow places and smooth out the wrinkles. The brush is made of a fine grade of red rubber and is a beautiful piece of rubber molding. [C. J. Bailey & Co., No. 22 Boylston street, Boston.]

"AMERICANETTES."

SOFT wool storm proof garments, light in weight, ventilated, stylish in shape, and durable, are proving very popular both in England and in the United States, as outside coats for ladies and gentlemen. They are made in several shades of tan, blue, gray, and oxford, the cloth being treated chemically so that it

is practically and permanently shower proof, and they are at once serviceable and economical. The American Rubber Co. (Boston, Mass.) are making goods of this class under the trade mark "Americanette," for men in Marlboro, Box Coat, and Raglan, and for women in Newmarket, Inverness (detachable cape), and Automobile.

A NEW WATER BOTTLE.

THE novel feature in the hot water bottle illustrated here-with, invented and patented by F. W. Stephenson, consists in certain attachments through which tapes or straps may be passed for binding the bottle to the person under treatment for diseases where the application of hot water is desirable. The utility of the invention will be obvious to any one who has experienced the inconvenience of keeping in place, under certain circumstances, the ordinary hot water bottle. Mr. Stephenson has granted licenses for making these bottles

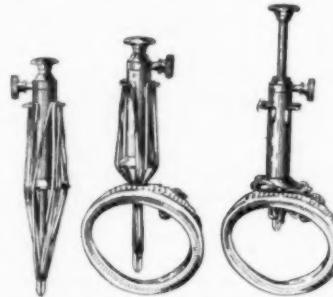


under his patent to the leading manufacturers of rubber druggists' sundries in the United States.

TWO TIRE NOVELTIES.

THE first of these, the Kelly Pneumatic Tire Repair Tool, is said to be the only one using rubber bands that is a perfect success. The reason for this is that it positively cannot pull

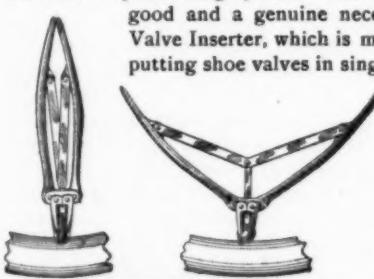
the bands out when the needle is withdrawn, no matter how large the puncture may be. It does not disfigure the tire, and will repair it when inflated. It is one of the few tools that repair tires after anti-leak solutions have been used. The tools are put up in a neat vest pocket box, the outfit containing tube of cement, rubber bands, awl, directions for



KELLY PNEUMATIC TIRE REPAIR TOOL.

use, etc., the price being 25 cents. The second, which is equally good and a genuine necessity, is the Whistler Valve Inserter, which is made for the purpose of putting shoe valves in single tube tires. It saves

time and expense and annoyance, by replacing leaky valves with new ones in a moment's time. No vulcanizing is necessary, and the non-necessity of any cutting or disfiguring the tire



WHISTLER VALVE INSERTER.

makes the leakage absolutely impossible. [The Kelly Manufacturing Co., Greentown, Ind.]

AMERICAN AND ENGLISH STYLES.

A LETTER from London, in the last INDIA RUBBER WORLD, in relation to various conditions in the British rubber goods trade, referred to the difference in the styles and appearance of various articles in demand there from the articles in the same line manufactured in the United States. An illustration is afforded by water bot-

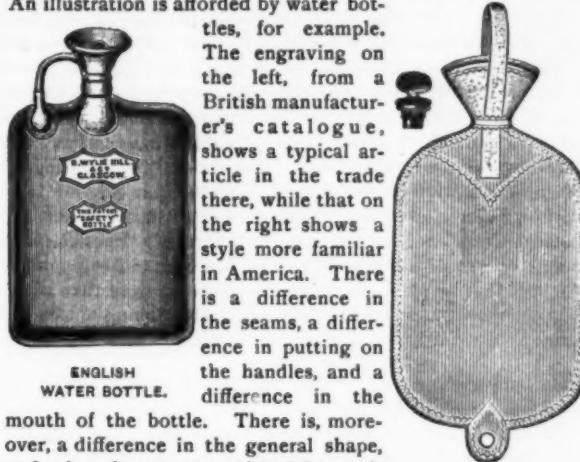
tles, for example.

The engraving on the left, from a British manufacturer's catalogue, shows a typical article in the trade there, while that on the right shows a style more familiar in America. There is a difference in the seams, a difference in putting on the handles, and a difference in the mouth of the bottle. There is, moreover, a difference in the general shape, and when it comes to advertising such goods, the English article is described as being so many inches long and wide, while the rule in America is to state the capacity of the bottle, say in quarts. While no one of these points of difference may seem important, it is not strange that people accustomed all their lives to buying a given article should hesitate somewhat to buy another, of different appearance, unless it should prove to possess some marked advantage over the old style. What is said here in relation to water bottles will be found to apply, in some degree, to most other lines of druggists' goods in rubber.

RUBBER VACUUM BAGS AND THEIR USE.

A VERY unusual and interesting use for India-rubber is molding by means of the vacuum bag. Clock manufacturers and other users of high grade molding fasten sheet celluloid to a great variety of designs by the use of what is known as the vacuum bag. These bags are made of the finest grade of Pará rubber, are 18 to 20 feet in length with one end rounded and closed, the bags being 6, 8, and 10 inches in width. For the heaviest bags, the rubber is calendered eight or nine ply, which insures great strength and toughness. It is absolutely necessary that the inside of the bag be perfectly smooth, the surface being finished like glass, since any imperfections will show on the celluloid surface. In use, the molding, covered with a sheet of celluloid, is placed in the bag, the open end of which is then fastened to a vacuum pump, 35 to 45 pounds of exhaust being used. It is then put into a vulcanizer, filled with hot water; the temperature being about 210° F., with a pressure of about 90 pounds to the square inch. The pressure of the rubber upon the celluloid, together with the heat of the water, thoroughly presses the celluloid into all irregular crevices in the molding, the result often being very beautiful. This work, however, is very severe on the bags, as they are usually worn out after three or four heats.

THE prospect of collecting rubber in New Guinea is proving very attractive to people in Queensland.



AMERICAN
WATER BOTTLE.

HEARD AND SEEN IN THE TRADE.

"WE have not exerted ourselves to any great extent in the bicycle tire line this season," said one of the licensees under the Tillinghast patent, "for the reason that the existing agreements took shape too late in the season for manufacturers to reap the full benefit of the advance in prices on this year's business. In other words, so much business had been written on the basis of former prices—and prices at which we were not anxious to make contracts—that we should have felt at a disadvantage in trying to obtain the new scale of prices during the remaining months of the season. I think that very few tires, comparatively, have been marketed on the basis of the new prices. Next season things may be different." I notice that a single jobber of tires in New York has been making much of the fact that he placed an order for 30,000 pairs of tires with a large manufacturer immediately before the signing of the new price agreement by the Tillinghast licensees.

IT appears now, by the way, that no additional licenses are likely to be granted under the Tillinghast patent. Those who have been active in having the patent sustained will be averse to sharing the benefits with manufacturers who in the past have disputed the validity of the patents.

THE same manufacturer is taking more interest in carriage and automobile tires just now. He is having developed a solid rubber vehicle tire, practically on the same principle as the electrically wired on tires now so much in vogue, but differing from them sufficiently to relieve him from any liability on the score of infringing any existing patent. "The gist of the only judicial decision in regard to these tires that has been rendered to date," said this manufacturer, "is that the tire to which the decision relates is formed by the combination of several distinct features, neither of which alone is novel, but only the particular combination covered by the patent. By inference, another combination may be possible, leaving out one of these features or adding something new, to produce practically the same result, but without infringing any patent. This, I think, we have about succeeded in doing."

IN answer to a question regarding the probable final type of tires for automobiles, this manufacturer said: "On all pleasure vehicles undoubtedly some form of pneumatic tire will be used, but on delivery wagons and all other vehicles used for carrying freight, solid rubber tires will answer every purpose, besides being less expensive and more durable than pneumatics. A tire of some resiliency is needed for the protection of the mechanism by which these vehicles are propelled, and the solid tires possess the requisite quality."

IN view of the yearly increasing sale of wool boots and "combinations," I asked a dealer in rubber boots about the effect on his trade. "The sale of rubber boots continues about the same," he said. "No doubt there would be more rubber boots sold now if there were no such things as wool boots on the market, but while these have come into large demand in late years, they have not driven out the rubber boot." This reminds me of the statement heard lately about the hard rubber trade. It was to the effect that while more hard rubber combs might be sold if celluloid had never been invented, yet the celluloid articles had not driven hard rubber out of the market. It had

merely interfered with the growth of the hard rubber comb business.

* * *

A JOBBER in rubber shoes tells me that his trade in the southern states has grown to a marked degree in recent years. The good prices realized during the past year for cotton, the principal staple of that section, has improved the sale of every class of goods for which any sort of demand exists there, and rubber shoes have come in for their share of increased trade. While jobbers' sales in that direction have been good during the season just closed, there is reason to believe that the retailers, on account of the stocks they will have to carry over, feel less cheerful in regard to rubber shoes.

* * *

THE increased importation of India-rubber goods into the United States of late may be due in part to some conditions suggested by a physician on the staff of a Chicago hospital with whom I have been talking recently. "We are still obliged," said he, "to depend upon foreign manufacturers for a good many special articles, of both hard and soft rubber, which are required in our work. Some of these articles I know, from my acquaintance with the trade, are not made in America. With regard to some other articles, I learn whether or not they are imported by the length of time required by the Chicago dealers to fill my orders. When I have to wait six weeks or more to obtain a syringe or atomizer or the like, it is pretty certain that the article has to be obtained from abroad." Two points were suggested to me by this conversation. In the first place, I remembered once hearing a hard rubber manufacturer remark that the Americans were able to control the market in his branch of the industry in all lines for which there was a good demand; but various specialties, which could not be sold in quantities, could be made more cheaply abroad than here, and his firm did not care to handle them. The other point was that the physician with whom I talked was born and educated abroad, and perhaps gave preference to methods of treatment and to apparatus with which he became familiar before adopting the United States as his home. Possibly an American physician in the same position would have made a lower estimate of the extent to which druggists' and surgical rubber goods are imported.

* * *

MY medical friend did have something of interest to say, however, regarding the methods of the rubber industry abroad. Taking up a catalogue issued by a German rubber firm—and by no means the largest in that country—the physician showed a list of more than 3000 separate articles for medical and surgical use. One was an atomizer for spraying the throat, with a hard rubber nozzle, the under side of which was corrugated as an aid to holding the patient's tongue in place, and thereby facilitating treatment. A number of other items had each some special feature, in regard to all of which the physician said: "The reason for this large variety of products is that medical men in Germany are all the while designing something new for use in special cases in their practice. If it is an article in rubber, they go to a rubber factory, where a single article will be made to order; if it seems to have any merit it goes into the manufacturer's catalogue." He thought that American manufacturers were less inclined to welcome business on such a small scale.

THE MAN ABOUT TOWN.

INDIA-RUBBER INTERESTS IN EUROPE.

SOME STATISTICS FROM GERMANY.

GERMANY imported last year 30,616,080 pounds of crude India-rubber and Gutta-percha and exported 11,952,380 pounds. The balance may be taken as approximating the consumption by German manufacturers. Applying the same rule to the rubber movement in that country for several years past, we have this comparative statement of consumption:

YEARS.	Pounds.	YEARS.	Pounds.
1889.....	7,322,480	1895.....	10,909,360
1890.....	6,663,360	1896.....	14,019,720
1891.....	8,041,880	1897.....	13,848,780
1892.....	8,249,780	1898.....	16,855,080
1893.....	8,881,840	1899.....	18,663,700
1894.....	10,110,540		

Here is a statement, based upon the official statistical returns as presented in the *Gummi-Zeitung*, of the value of imports and exports of rubber goods by Germany for the past two years, the figures denoting marks:

IMPORTS.		CLASSIFICATION.	EXPORTS.	
1898.	1899.		1898.	1899.
127,000	24,000	... Hard Rubber in Mass....	172,000	347,000
2,621,000	2,421,000	... Rubber Threads and Sheets...	2,302,000	3,026,000
1,709,000	1,928,000	... Coarse Soft Rubber Goods...	22,736,000	26,316,000
5,733,000	4,754,000	... Fine Soft Rubber Goods...	7,750,000	8,097,000
137,000	158,000	... Hard Rubber Goods....	5,867,000	6,311,000
103,000	99,000	... Toys of Soft Rubber....	(a)	(a)
3,036,000	2,598,000	Fabrics Coated with Rubber...	3,363,000	3,835,000
88,000	73,000	Elastic Fabrics and Hosiery...	393,000	333,000
237,000	260,000	Hemp and Rubber Hose...	1,056,000	1,138,000
346,000	462,000	Rubber Proofed Clothing...	1,392,000	1,411,000
.....	.....	Unclassified Rubber Goods...	105,000	106,000
14,137,000	12,777,000	Total, German Money....	45,136,000	50,920,000
£ 706,850	£ 638,850	Total, English Money....	£ 2,256,600	£ 2,546,000
\$3,534,250	\$3,194,250	Total, American Money....	\$11,284,000	\$12,730,000

(a) Included in "Fine Soft Rubber Goods."

[NOTE.—In computing values £1 is estimated at 20 marks and \$1 at 4 marks.]

GERMAN TRADE IN RUBBER BOOTS AND SHOES.

THE German statistics of imports and exports of rubber goods now include a separate classification for boots and shoes, with the result that it is now possible to present the following statement, covering the movement of these goods for the six months from August 1, 1899, to January 31, 1900, inclusive, the figures denoting weights in kilograms:

	Imports.	Exports.	Imports.	Exports.
Belgium.....	300	1,300	Sweden.....	1,200
Denmark.....	1,700	10,000	Switzerland.....	—
France.....	500	2,500	B. East Indies...	—
Great Britain....	20,700	5,000	Japan.....	—
Italy.....	—	106	B. Australia....	—
Netherlands.....	—	200	United States....	1,400
Norway.....	—	4,100	Other countries...	2,600
Aus.-Hungary....	58,500	400		1,400
Russia.....	74,600	—	Total.....	161,500
				32,500

It is not impossible that the imports credited to Great Britain embrace a certain amount of American goods shipped through agencies in London. During the last fiscal year the United States sent 123,261 pairs of rubber footwear to Germany, and the exports since have been supposed to be on an increasing scale.

A NEW RECLAIMED RUBBER.

THE Dialene Rubber Co., Limited, with £15,000 capital, was registered in London on February 20, to adopt an agreement with George E. Heyl-Dia, an electrical engineer of Manchester, for the acquisition of certain secret processes for the manufacture of rubber out of old and used rubber, by means of chemical treatment, to manufacture and deal in "Dialene" rubber, to apply the said processes to the insulation of telegraphic, telephonic, and electric cables, wires, and appliances, and to carry on the business of rubber manufacturers and merchants, makers of rubber goods and articles. The managing directors are George E. Heyl-Dia and William H. Cresswell. One of the statutory subscribers is Frank Reddaway, of F. Reddaway & Co., Limited, rubber manufacturers, of Manchester.

REPORT OF THE HENLEY COMPANY.

AT the meeting of the W. T. Henley's Telegraph Works Co. (London) on February 28, the managing director, Mr. Sutton, stated that "they had a very large stock of Gutta-percha, the largest they had ever held. The price had gone up 100 per cent. in the last two years. Some, which had cost them 4s. or 5s. was now worth between 7s. and 8s." The manufacture of golf balls had fallen off during the year—owing to the war. The dividends on the year's business amounted to 15 per cent. The capital stock has been increased and the debentures decreased until the former stands now at £350,000 and the latter at only £50,000. The reserve fund was £42,500.

MISCELLANEOUS NOTES.

THE consumption of crude rubber in Great Britain for three years past is stated by *The India-Rubber Journal* as follows:

	Pounds.	Value.
In 1897.....	17,836,896	£1,757,538
In 1898.....	21,809,536	2,194,083
In 1899.....	16,075,584	1,635,932

The average import value per pound of the rubber consumed was 1s. 11½d. in 1897; 2s. 4½d. in 1898; and 2s. 0¾d. in 1899.

=Ferguson, Shiers & Co., waterproof manufacturers at Manchester, England, whose town premises were burned in November last, have obtained a new location on Tortworth street, where six floors have been fitted up, with a total area of 30,000 square feet. It includes offices, show room, and manufacturing departments, their proofing work being carried on, as hitherto, at Failsworth. Between 400 and 500 hands will be accommodated. An electric motor of 7 horse power runs the machines and supplies the lighting, with 300 lamps.

=P. Frankenstein & Sons (Manchester, England) are mentioned as having brought out their new ranges of patterns in waterproof goods, comprising about 400 each of double and single textures for ladies' and gentlemen's garments. It is stated that "their invisible herringbone patterns are in great demand."

=The statistics of the foreign trade of Austria-Hungary for 1899 show a slight decrease in the imports of India-rubber goods and a marked increase in the exports of such goods.

=Details of imports into Uruguay show that, whereas most of the rubber goods bought in that country came formerly from Great Britain and Germany, the imports from these countries have declined recently in favor of Italy.

AMERICAN RUBBER GOODS EXPORTS.

RETURNS have now come to hand of exports of rubber goods from the United States for seven months of the current fiscal year, the values being as follows:

MONTHS.	Beltin, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
July, 1899....	\$51,535	\$22,580	\$ 99,918	\$174,033
August.....	59,069	43,378	102,264	204,711
September.....	42,858	34,233	122,959	200,050
October.....	52,643	34,894	106,223	193,760
November.....	33,913	47,898	120,221	202,038
December	39,051	40,426	101,771	181,248
January, 1900.	40,137	30,452	94,886	165,475
Total.	\$319,196	\$253,861	\$748,242	\$1,321,315

The exports of rubber goods of all kinds for the corresponding seven months of 1898-99 reached a total value of only \$970,927. The rate of increase is over 36 per cent. The exports of rubber shoes during the seven months amounted to 487,531 pairs, against 342,848 pairs in the first seven months of the preceding fiscal year—an increase of more than 42 per cent.

WHERE AMERICAN RUBBER GOODS GO.

THE exports of rubber goods from the port of New York during the four weeks ended February 27, 1900, amounted in value and were consigned as follows:

Great Britain.	\$27,143	Bt'h Honduras.	\$ 22	Peru.....	... \$ 328
Germany.....	7,859	Cuba.....	5,431	Ecuador.....	189
France.....	906	Porto Rico	193	B. Australia	17,660
Belgium.....	854	B. West Indies.	452	New Zealand...	6,613
Italy.....	90	Haiti.....	61	China.....	134
Netherlands ..	1,568	Colombia.....	278	Japan.....	474
Aus. Hungary.	5,240	Venezuela.....	326	B. East Indies..	811
Denmark.....	1,370	British Guiana.	39	British Africa..	328
Norw'y-Swed'n	105	Dutch Guiana.	14	Nova Scotia....	108
Russia.....	5,262	Brazil.....	709	Newfoundland..	598
Mexico.....	3,768	Argentina.....	930	Total	\$91,250
C'tral America.	1,327	Chile.....	120	Total	\$91,250

Some other items of exports during the same period have been classified by the customs service as follows:

DRESS SHIELDS.

Antwerp.....	\$3,465	Liverpool.....	\$3,278	Southampton....	\$1,491
Australia.....	139	London.....	4,210	Vienna.....	3,502
Hamburg.....	2,753	New Zealand...	25		
Havre.....	664	Rotterdam....	520	Total.....	\$20,047

INDIA-RUBBER CEMENT.

Liverpool.....	\$848	Other ports.....	\$204	Total.....	\$1,052
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RECLAIMED RUBBER.

Berlin.....	\$ 3,400	Hamburg.....	\$ 7,125	Manchester...	\$ 4,050
Genoa.....	5,185	Havre.....	7,086		
Glasgow.....	1,078	Liverpool....	2,850	Total.....	\$30,774

CRUDE INDIA-RUBBER.

British Africa.\$	20	Leith.....	\$ 950	San Domingo..	\$ 17
Genoa.....	250	Liverpool....	24,605	Stuttgart.....	52
Glasgow.....	15,067	London.....	61,942		
Hamburg.....	16,117	Nova Scotia...	194	Total.....	\$119,213

Two other items were "India-rubber substitute" (Liverpool), \$700, and "India-rubber machinery" (Hamburg), \$145. The total rubber goods exports from New York during February, 1899, amounted in value to only \$42,902.

THERE exists in Chicago an anti-cruelty society, under the presidency of Mrs. Theodore Thomas, who has been exerting herself to promote the use of rubber shoes on horses, to prevent their slipping in winter. As the result of the society's efforts the Chicago Cariette Co., have placed rubber shoes on some of the horses drawing their vehicles.

CANADA IMPORTS MORE RUBBER GOODS.

THE value of imports of manufactures of India-rubber and Gutta-percha into Canada during the fiscal year ended June 30, 1899, as officially stated, is given in the first table below. An increase is shown both in the imports from the United States and in the total:

IMPORTS.	United States.	Great Britain.	Other Countries.	Total Value.	Duties Collected.
Boots and shoes.....	\$ 57,591	\$ 262	\$ 16	\$ 57,869	\$ 14,369.47
Beltin.....	23,226	565	—	23,791	5,910.12
Clothing and waterproof cloth.....	59,894	91,643	305	151,842	45,646.97
Hose.....	29,839	1,463	—	31,302	10,842.93
Packing and mats.....	27,718	1,285	124	29,127	10,082.03
Sheeting.....	170	49	—	219	52.09
All other.....	160,599	24,256	14,685	199,540	47,814.08
Total.....	\$359,037	\$119,523	\$15,130	\$493,690	\$134,717.69

Total, 1898....\$355,525 (a) \$147,706 \$403,231 \$112,688.41
Total, 1897....209,776 (a) 110,127 313,903
Total, 1896....217,536 (a) 139,745 357,281

(a) Included in "Other Countries."

There may also be noted the imports of the following articles, not classified by the Canadian customs as "rubber goods":

IMPORTS.	United States.	Other Countries.	Total Value.	Duties Collected.
Elastic, round or flat.....	\$14,469	\$69,162	\$ 83,631	\$23,625.62
Webbing, elastic or non elastic.	68,954	52,670	121,624	22,196.20
Stockinette for rubber boot and shoe makers.....	44,586	14,095	58,681	8,465.60
Duck for rubber belting and hose.....	84,270	18	84,288	free.
Rubber thread, elastic.....	1,733	—	1,733	free.

The exports of Canadian rubber manufactures were larger than in any former year, as follows:

To—	Value.	To—	Value.
Great Britain.....	\$23,290	Turkey.....	\$ 267
Australia.....	5,608	United States.....	85,084
Newfoundland.....	18,212	Total.....	\$133,332
British Africa.....	414	Total, 1898.....	77,685
New Zealand.....	94	Total, 1897.....	26,121
France.....	333	Total, 1896.....	30,879
Germany.....	30		

The Canadian statistics of imports for the fiscal year ended June 30, 1899, show these details relating to crude rubber:

CLASSIFICATION.	Pounds.	Value.
Gutta-percha.....	272	\$.356
India-rubber.....	2,211,321	1,632,764
Rubber, recovered; rubber substitute, and hard rubber in sheets.....	1,936,446	208,069
Rubber waste.....	82,066	6,788
Total.....	4,230,105	\$1,847,977

The total is larger than in any previous year. In the following comparative table for five years the figures refer to pounds:

YEARS.	India-rubber and Gutta-percha.	Recovered Rubber and Substitute.	Total.
In 1894-95.....	1,402,844	611,745	2,014,589
In 1895-96.....	2,155,576	643,169	2,798,745
In 1896-97.....	2,014,896	1,061,402	3,076,298
In 1897-98.....	2,457,521	1,316,494	3,773,815
In 1898-99.....	2,211,593	1,936,446	4,148,039

The imports of rubber from the United States amounted to 2,172,204 pounds and of recovered rubber, 1,925,058 pounds.

"THE Standard Guide to the City of Mexico and Vicinity," compiled by Robert S. Barrett and published by the Modern Mexico Publishing Co., St. Louis, Mo., at 50 cents, contains much information that will interest the general reader, apart from its value to one who visits Mexico for the first time. The book contains more than a hundred fine illustrations and, in addition to its practical value, forms an attractive souvenir for tourists.

INDIA-RUBBER FOR CABLE INSULATION.

AN article in *The Electrician* (London), by H. L. Terry, on the manufacture of India-rubber cables for submarine use, and particularly to their durability, has called forth a somewhat lengthy reply, published in a more recent issue of the same journal, by Oscar Schaefer, the author of a paper in THE INDIA RUBBER WORLD of December 1 last.

According to Mr. Schaefer, the manufacture of seamless India-rubber wires is said to be neither new nor to be recommended—at least not to users; its drawback lies in the fact that on account of their elasticity good strong elastic rubbers like Pará cannot be pressed through the machines of the seamless process, unless heated to such an extent that they perish; the only rubber suitable for working on such machines are cheap, soft qualities. The failure of underground India-rubber cables in England is not necessarily due to bad material or bad workmanship; the principal cause lies in the faulty use of India-rubber insulated cables. Such cables or wires should not be used underground, in mines, or in other places where they are exposed to gas, stagnant air, or moisture, without being cased in lead. If they are covered only with a tape and braiding, or if they are iron armored, the India-rubber deteriorates under the action of gas and moisture. To obtain all possible advantages from a lead casing on India-rubber cables, it is necessary that the lead lies tightly on the India-rubber or on the tape surrounding it. In multiple core cables each core should have its own covering of lead, as otherwise the fibrous worming and serving yarns are liable to get soaked with moisture at the ends or at faults in the lead.

In an editorial note in *The Electrician* attention is called to the difficulty of pressing a tight lead covering on rubber cables, especially if the jute braiding which usually surrounds the core, is omitted, as it should be. With a hot lead press it is difficult to cover the wire without burning the insulation under these conditions, and although one firm has used a cold lead press for several years, this type is not popular. Our London contemporary adds: "More information on such matters as these, and especially on the circumstances in which rubber has and has not proved long lived, would be of great interest." THE INDIA RUBBER WORLD has arranged for presenting, at an early date, some original articles treating this subject more fully.

NEW TRADE PUBLICATIONS.

THE TYER RUBBER CO. (Andover, Mass.) have issued a new illustrated Price List of the "Tyrian" Druggists', Surgical, Stationers' and Sporting Rubber Goods, which gives a good idea of the character of a very full and varied line of products. The business dates from 1856, having been founded by the late Henry George Tyer, the inventor and patentee of the white rubber now used universally in the manufacture of druggists' rubber goods. [4 $\frac{3}{4}$ " x 7 $\frac{1}{2}$ ". 100 pages.]

THE CLARK CYCLE TIRE CO. (Equitable building, Boston) issue an illustrated pamphlet descriptive of the Clark valveless pneumatic tire for carriages and automobiles. This is described as being the smallest tire offered for such use and as having no valve, valve stem, lugs, or bolts to hold it in place. [7 $\frac{1}{2}$ " x 5 $\frac{1}{4}$ ". 15 pages.]—Also a pamphlet entitled "What Our Patrons Say Concerning the Clark Valveless Tire". [3 $\frac{3}{4}$ " x 6". 8 pages.]

THE CONTINENTAL CAOUTCHOUC- UND GUTTAPERCHA COMPAGNIE (Hannover, Germany), who are extensive manufacturers of rubber pad horseshoes, rubber horse boots, and the

like, issue an extensive catalogue of such goods, including those made under the patents of Carl Hartmann, including notes on the advantages and methods of the use of these articles, and illustrations of the same, together with the implements used in applying them. [6" x 9 $\frac{1}{2}$ ". 31 pages.]

THE CANADIAN RUBBER CO. OF MONTREAL have issued a collection of testimonials from users of their goods, under the title: "Eminent Canadian Firms Speak of Our Rubber Belting as They Find it." The letters make very interesting reading. [5 $\frac{1}{2}$ " x 5 $\frac{1}{2}$ ". 16 pages.]

THE UNITED STATES PNEUMATIC HORSE COLLAR CO. (No. 52 Broadway, New York) have issued a new and enlarged edition of an illustrated pamphlet describing the United States Pneumatic Horse Collar, in the manufacture of which India-rubber appears to be used to an important extent. [3 $\frac{3}{4}$ " x 6". 24 pages.]

RECENT RUBBER PATENTS.

UNITED STATES PATENT RECORD.

ISSUED JANUARY 2, 1900.

NO. 640,460. Non puncturable wheel tire. Albert M. Ferguson, Syracuse, N. Y., assignor to the Rochester Non Puncturable Tire Co., Rochester, N. Y.

640,644. Process of Manufacturing India-rubber tires. Henri Falconnet and Maurice Perodeaud, Choisy-sur-Seine, France.

ISSUED JANUARY 9, 1900.

640,735. White elastic compound. Percy C. Bell, Metuchen, N. J.

640,821. Pneumatic tire. Jacob A. S. Simonson, New York city.

640,851. Tire for wheels. Olaf J. M. Ancora, Milwaukee, Wis.

640,863. Elastic tire. Edgar M. Birdsall, Buffalo, N. Y., assignor to DeWitt H. Bothwell, Toledo, Ohio.

640,927. Shielded rubber tire for vehicles. Robert Mitchell, Glasgow, Scotland.

641,130. Soft tread horseshoe. Elmer E. Mears and Jules A. Collet, New York city.

641,153. Pneumatic rubber tire. Frank A. Seiberling, Akron, Ohio.

641,210. Soft tread horseshoe. Theodore N. Jones, Crisman, Colo.

ISSUED JANUARY 16, 1900.

641,337. Process of manufacturing pneumatic tires. Frank A. Seiberling, Akron, Ohio.

641,445. Bicycle wheel tire. Albert M. Ferguson and Kendrick P. Shedd, Rochester, N. Y., said Shedd assignor to the Rochester Non Puncturable Tire Co., same place.

641,635. Key for typewriters. Frank C. Blynton, Springfield, Mass.

ISSUED JANUARY 23, 1900.

641,735. Tire for vehicle wheels. Henry W. Theis, Milwaukee, Wis., assignor of two-thirds to Gustav Podoll and Gustav H. Gottschalk, same place.

642,051. Pneumatic tire. John J. McDonald, Cardiff, England, assignor to Thomas John Rogers, Brantford, and Edward James Whyte, Lucius Normah Van Stone, and George Richard William Rogers, Toronto, Canada.

ISSUED JANUARY 30, 1900.

642,336. Pneumatic tire. Alfred Junod, Ste. Croix, Switzerland.

642,351. Tire. Henry A. Middleton, Erie, Pa.

642,348. Pneumatic tire for vehicles. Arthur H. Marks, Akron, Ohio, assignor to the Diamond Rubber Co., same place.

642,355. Rubber for surfacing stone, marble, etc. Alexander M. I. McLeod, Quincy, Mass.

642,411. Piston rod packing. George F. Allen, St. Louis, assignor to the Hoyt Metal Co., same place.

642,420. Means for securing pneumatic tires on wheel-rims. Arthur T. Collier, St. Albans, England.

DESIGN PATENTS.

32,140. Boot or shoe heel. John W. Brown, Trenton, N. J., assignor to the Grieb Rubber Co., same place. January 23.

TRADE MARKS.

- 33,985. Nursing Nipples. Meinecke & Co., New York city. January 2.
34,017. Certain named rubber footwear. Monarch Rubber Co., St. Louis. January 9, 1900.

THE ENGLISH PATENT RECORD.

APPLICATIONS.

- 23,631. Julius Heinrich Fritz Carstens, Luisenstrasse 24, Berlin. Improvements in pneumatic tires. November 27.
23,659. Eugene François Le Janne, 11, Southampton buildings, London. Improvements in or relating to elastic wheel-spokes. November 27.
23,788. Louis Landau Goodman, 4, St. Ann's square, Manchester. An improved puncture preventer for pneumatic tires. Nov. 29.
23,821. James Avando Taylor, 99, Cannon street, London. Improvements in or relating to covers for the tires of wheels of cycles. November 29.
23,896. August Johan Mottlau, 77, Chancery lane, London. Improvements in pneumatic tires and in wheels used therewith. November 30.
23,939. George Bulman, 70, Langham street, Liverpool. "Pneumatic rolock" for ease of propulsion of all craft using oar sculls, etc. November 30.
24,093. Anthony Benson Harrison, 28, Victoria road, London. Improvements in and relating to pneumatic tires for cycles and other vehicles. December 4.
24,108. Jonathan Aldous Mays, 75, Chancery lane, London. Improvements in pneumatic wheels. December 4.
24,194. Clara Salsbury Ferguson, 77, Chancery lane, London. Improvements in and relating to rubber heels for shoes and boots. December 4.
24,221. Joseph Lawthwaite, 166, Fleet street, London. Improved arrangements of appliances as a resilient tire for cycle and like wheels. December 5.
24,232. Frederick Richard Brooke, 18, Buckingham street, Strand, London. Improvements in pneumatic horse collars. December 5.
24,255. George Gibson, 41, Aubrey road, Liverpool. Improvements in vehicle tires. December 6.
24,316. Harry Pass, 6, Lord street, Liverpool. Improvements in devices for protecting or mending pneumatic tires. December 6.
24,333. William Jones, Acacia Mills, near Worcester, England. The self-inflating pneumatic life belt. December 7.
24,342. Edmund John Denyer, "Ashcroft," Staines, England. Hose leak preventer. December 7.
24,409. John Mangnall and Vivian Leigh Mangnall, 451, Chester road, Manchester. Improvements in pneumatic tires. December 8.
24,416. William Alfred Turpin, 18, Hertford street, Coventry. Improvements in or relating to elastic tires. December 8.
24,490. William Richard Swift, 24, Temple row, Birmingham. Improvements in pneumatic tires. December 9.
24,548. Adolphus Isidore Rath, 36, Grove lane, London. Improvements in tires for the wheels of cycles and vehicles. December 10.
24,566. John Adair, Waterford, Ireland. Improvements relating to pneumatic tires for wheels and arrangements in connection with such wheels. December 11.
24,599. Isidore Ramboux, 18, Fulham place, London. Improvements in cement for joining marble mirrors, china, earthenware, metal, and the like. December 11.
24,600. Frank Hampton and Edmund Hampton, Findon, Worthing. Improved India-rubber feeding apparatus for rearing young live stock. December 11.
24,604. Alfred Emanuel Wright, Ash Vale, Aldershot. An improved tire. December 11.
24,708. William Thomas Miller, 111, Hatton garden, London. Improvements in overshoes. December 12.
24,709. Calvin Thayer Adams, 111, Hatton garden, London. Improvements in or relating to vehicle tires. December 12.
24,710. Calvin Thayer Adams, 111, Hatton garden, London. Improvements in or relating to vehicle tires. December 12.

- 24,725. Herbert John Haddan, 18, Buckingham street, Strand, London. Improvements in nursing nipples. [Christian William Meinecke, United States.] December 12.

- 24,762. Richard Douglas, 100, Wellington street, Glasgow. A pneumatic under saddle for horse saddles. December 12.

- 25,048. Morland Micholl Dessa, 111, Hatton garden, London. Improvements in or relating to fabric for pneumatic tires. December 18.

- 25,050. Jean Lippert, 77, Colmore row, Birmingham. Improvements in hot water bottles. December 18.

- 25,352. Alfred Eugene Harris, 111, Hatton garden, London. Improvements in the manufacture of bands for pneumatic tires. December 21.

- 25,365. Louis Frankenstein and Charles Lyst, 6, Bank street, Manchester. Improvements in apparatus for grinding, mixing and calendering rubber. December 21.

- 25,389. Samuel Mendel, 43, Kilvert's buildings, Manchester. Pneumatic last for boots and shoes. December 22.

- 25,416. Franz Richter, 70, Chancery lane, London. Improvements in valves for pneumatic tires. December 22.

- 25,494. Siemens Brothers & Co., Limited, and Wilhelm Dieselhorst, Southampton buildings, Chancery lane, London. An improvement in the manufacture of Gutta-percha.

- 25,597. Michael Alexander Kennedy, 4, South street, Finsbury, London. Improvements in rubber fabrics. December 27.

- 25,592. Herbert John Haddan, 18, Buckingham street, Strand, London. Improvements in or relating to tires for wheels of vehicles. [Frank Wilbur Kinney, Edgar Arnold Hill, and Raymond Beach Price, United States.] December 27.

- 25,676. Edward Harnett, Limited, and Cecil Waller Prince, 9, Warwick court, Gray's Inn, London. Improvements in rims and tires for vehicle wheels. December 29.

PATENTS GRANTED.—APPLICATIONS OF 1899.

- 17,508. Pneumatic Tire. Rae, W. F., Kensington, Middlesex. December 6.

- 17,642. Pneumatic Tire. Wyatt, I., 21, Benedict road, Brixton, Surrey. December 6.

- 17,651. Pneumatic Tire and Method of Attachment. Boguslavsky, A., 83, Piccadilly, and Gunn, L., 17, Lamb's Conduit street, London. December 6.

- 18,008. Utilizing Rubber Waste. Anderson, I., The Lodge, Clayton, Manchester. December 13.

- 18,040. Puncture Proof Pneumatic Tire. Napier, D., 306, Marshall street, Johannesburg, South Africa. December 13.

- 18,058. Method of Inflating Pneumatic Tires. Everett, J. F., "Langham House," and Kirkman, A., "The Limes," Wallington, Surrey. December 13.

- 18,155. Elastic Spring Tire. Bernhard, J., 2½, Juliuspromenade, Wurzburg, Bavaria. December 13.

- 18,260. Method of Attaching Pneumatic Tire. Price, J. H., 164, Corporation street, Birmingham. December 13.

- 18,458. Method of Attaching Pneumatic Tire. Adair, J., Waterford, Ireland. December 20.

- 18,534. Pneumatic Tire. Rodgers, J. G., 94, North Limestone street, Springfield, Ohio. December 20.

- 18,667. Method of Repairing Punctures in Pneumatic Tires. O'Neill, O. F., 2454 Germantown avenue, and Doebele, W. H., 733 Chestnut street, Philadelphia, Pa. December 20.

- 18,824. Non Puncturable Pneumatic Tire. Fulford, J. W., Utica, New York. December 27.

- 18,928. Hot Water Bottles. Justice, P. M., 55, Chancery lane, Middlesex. [Morrill, J. F., Boston, Mass.] December 27.

- 18,936. Garments for Wear in Chemical Works. Esop, J. H., Kliener Brasbroek, Hamburg, Germany. December 27.

- 19,020. Pneumatic Tire. Pfirmann, H., Schaferstrasse, 9, Frankfurt-on-Main, Germany. December 27.

- 19,223. Rubber Hand Stamps. Smith, R. H., Springfield, Mass. December 30.

RUBBER TIRE FAILURES IN ENGLAND.

THE failure of companies making a speciality of rubber tires is a too frequent phenomenon. The public fail to fathom the cause of these failures, but the man within the inner circle knows that 75 per cent. may be attributed to inefficient management, the remainder to a persistent attempt to push a tire that will not answer the purpose for which it is intended. Let us instance several glaring examples.

First, for example, is the "Tubeless" tire. It was predicted more than three years ago that this tire would not take—really take—with the general public, for the reason that, to make it hold air, the inner rubber flap required to be soft soaped. Men and women who can afford to ride bicycles will not be bothered with tires that require the application of a material so inconvenient to handle as soft soap. While there has been some sale of these tires, those who have bought them seldom speak well of them. Should a tubeless tire become punctured on the road and require patching, it would be necessary, in some cases, in order to find the puncture, to immerse the machine in a pond. How few men and women have sufficient patience to go through this performance. These defects have long been known, yet the directors of the company have continued the manufacture. They relinquished a good mechanical rubber business to carry on the manufacture of these tires. The year before last the company dropped £25,000 and last year the loss was £20,000. The directorate then decided to try another year, which is just about to close, with the prospect of no happier result. Every rubber man would prefer to see these companies prosperous, but that cannot be so long as men are put to manipulate rubber who never have learned the business. The writer has known men from the grocery, drapery, and tea trades put to buying and mixing Pará rubber at 4 to 5 shillings per pound. This certainly is courting failure.

Another instance is the "Non-Collapsible" tire. An old friend of the writer's, a really first rate traveler, was made mill manager. He could sell tons of rubber and thousands of tires and cycle accessories, but properly mix an ounce of rubber he could not; it was not to be expected. The company put upon the market 30,000 tires, in which the deleterious "Atmoid" played a part. Atmoid may be sometimes of use in mechanical rubbers, but never in pneumatic tires. The natural result is a loss of £20,000, and a wise resolve to get out of the tire manufacture, and take up again mechanical rubber goods, under the company's old and well known name.

There are several other instances. A large company made two attempts to manufacture tires, and in the result sunk nearly £150,000 and disappeared from the scene. It was under the management of a policeman—a man who had no idea of what was required. His factory filled with rejected tires, which afterwards found their way into cheap mechanicals, buffers, perambulator tires, and packing; that is, Pará rubber bought at 4 shillings a pound, washed out at say 4s. 9d., converted from pneumatic tires into buffers and sold at 1 shilling per pound net, and even at less, as packings. These are the disastrous results which we see around us to-day of inefficient management.

Moral.—Get skilled managers, men who have learned their business, to manipulate rubber and insure success. F. M.

England, March 7, 1900.

THE Peruvian export of rubber for 1898 is reported officially as follows, in pounds: Jebe rubber—fine, 857,340; medium, 29,480; coarse, 243,760. Cauchó, 450,340; cauchó sernamby, 845,680. Total, 2,426,600.

INDIA-RUBBER VARNISHES.

WITH crude rubber at the prices which have prevailed for the past two or three years, and considering the excellent results that varnish makers get from cheap gums like resin, and from various resinites, it is not very likely that India-rubber varnish will ever be largely used commercially. But every now and then somebody wants to know how to make an India-rubber varnish for some purpose where the question of cost does not enter largely. Indeed, THE INDIA RUBBER WORLD has just received an inquiry for a formula, in response to which the following is suggested:

Rosin, 5 pounds; washed India-rubber, 35 ounces; linseed oil, 5 pounds. The method of making is as follows: The rosin is heated slowly until it begins to emit a vapor, after which the rubber is added in very small pieces, the mixture being constantly stirred. When it has become quite uniform the hot linseed oil is added gradually. After the whole has been heated until a disagreeably smelling vapor begins to arise, the mixture is then taken from the fire, and the stirring continued until it becomes cold. This varnish has often been used as a water-proof coating for fabrics and for leather, and is quite elastic, and shows no tendency to crack. Petroleum is used sometimes to dissolve the India-rubber before it is mixed with the rosin, but as a rule, the results are quite unsatisfactory, the trouble being that the petroleum is apt to consume a certain amount of water.

In this connection, it may be well to mention certain lacquers made from waste hard rubber. The receipt for this calls for the melting of the hard rubber in an iron pot, while stirring the mass constantly to keep it from burning. It is then poured upon a tin plate, allowed to cool, and broken up into small pieces. These are then immersed in five to ten times their bulk of rectified oil of turpentine, or a mixture of equal parts of turpentine and benzine, which will dissolve a certain part of the mass. The part dissolved is poured off from the sediment, giving a dark brown lacquer which forms an excellent coating for metal. A number of coatings of it often give a very black and glossy effect.

AN INCIDENT IN EXPORT TRADE.

THERE are certain features in connection with the export business that so disgust the manufacturer that he is apt to develop a very strong prejudice against it. For example, a certain leading house in the manufacture of mechanical rubber goods, at considerable expense, worked up quite a sale of their goods in Austria, where their trade marks were synonyms for good goods. Certain Austrian manufacturers, however, deliberately copied these trade marks, line for line, and put them on the very cheapest kind of goods, and thus effectually ruined the trade that American enterprise had built up.

THE overturning of an electric cab in Boston because of the sudden deflection of one of its forward pneumatics only adds another to the many difficulties encountered in trying to solve the paradox of using pneumatic tires on two ton electric vehicles, or, on the other hand, sacrificing storage batteries to cobble stones and solid tires.—*The Horseless Age.*

A MANUFACTURER of rubber shoes in the United States has a customer, one half of whose store is in Canada, and the other half in the United States. On one side are American shoes, made in Connecticut, while on the other side are rubber shoes made in Canada. Neither kind interferes with the other.

RANDOM NOTES FROM PARA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The rubber crop this season from the river Javary is estimated by a Manáos newspaper at not more than one-third of the output last year, owing to overflows which interfered with working the rubber and also to the prevalence of sickness among the workers.

The yield of the Acre district, the Bolivian department which lately has been the scene of a revolution, has also been less than usual. The president of the so-called republic of Acre, which has been organized in that district, has forbidden the export of rubber to Manáos or Pará prior to April.

The Sears Pará Rubber Co. have established a branch at Manáos, in charge of Messrs. E. M. Backus and M. F. von Schwartz.

The figures herewith indicate how important the ports of Iquitos and Manáos are becoming as points of shipment for rubber. The shipments direct from those ports have increased as follows:

YEAR.	TONS.	YEAR.	TONS.	YEAR.	TONS.
1880.....	373	1887.....	1,688	1894.....	3,953
1881.....	307	1888.....	2,141	1895.....	5,433
1882.....	430	1889.....	3,255	1896.....	6,827
1883.....	655	1890.....	3,693	1897.....	7,523
1884.....	1,013	1891.....	3,991	1898.....	7,173
1885.....	1,402	1862.....	8,812	1899.....	7,853
1886.....	1,574	1893.....	3,745		

Albert Courboin, the illustrious Belgian explorer at present on the river Juruá, writes to the Belgian consul at Pará: "I have acquired some knowledge of the Indian tribes between the Juruá and the Javary, of some of whom I have taken photographs. The soil is most rich in rubber and caucho. I can affirm the existence of a new tree, of whose leaves, seeds, and plants I shall send specimens to Pará. It is abundant, the milk is rich, and the rubber is similar to sernamby. After smoking, it is flexible and elastic. These regions are in a great part unknown."

Pará, Brazil, March 7, 1900.

GRAO PARA.

GUTTA-PERCHA CORPORATION TROUBLES.

THE Gutta-percha Corporation, Limited, with £200,000 capital, floated in London in December, 1897, to work the Sérullas patent for extracting Gutta-percha from leaves, have had far from plain sailing. About September, 1899, it was announced that works had been acquired at Belvedere, Kent, England, and the process was being put to use. But soon after one Thornton, holder of £6400 of the company's debentures, on which interest had not been paid, brought suit for the appointment of a receiver. The company did not oppose the action, it being deemed necessary to keep the company going, by any means possible, in view of a possible reorganization. On November 23, in the chancery division of the high court of justice, Mr. Hayes was appointed receiver and manager, to act at will for not exceeding four months, without further application to the court. On December 9 the court made an order for the enforcement of Thornton's security in the terms of the debentures.

"COFFEE and Rubber Culture as an Investment" is the title of the latest publication of the Mexican Gulf Agricultural Co. (Kansas City, Mo.) It is further described as "A record—not a prospectus," and relates to the success already attained by the company in growing coffee, and the progress to date in establishing a rubber plantation, which embraces 500,000 young trees.

LITERATURE OF INDIA-RUBBER.

APAPER was read at the last meeting of the British association, at Dover, by J. Parkin, M. A., on "Some Isolated Observations on the Function of Latex." It was based upon investigations on rubber yielding trees during the author's sojourn in Ceylon, where he acted for a year or more as scientific assistant to Mr. Willis, the director of the royal botanic gardens there. The same matter had been treated already in a circular of the Ceylon gardens, reviewed some months ago in THE INDIA RUBBER WORLD.

The subject of India-rubber and Gutta-percha planting is treated by Professor O. Warburg, in "Die Tropische Agrultur; ein Handbuch für Pflanzen und Kaufleute," by H. Semler, of which the second edition has appeared.

IN CURRENT PERIODICALS.

INDA-RUBBER as Insulating Material for Cables. By Oscar Schaefer. [Opposed to the insulation of wires with seamless rubber under pressure.] = *The Electrician*, London. XLIV-1131 (January 19, 1900). pp. 426-427.

La Culture des Plantes à Caoutchouc en Cochinchine. By E. L. Achard, agricultural inspector. = *Revue des Cultures Coloniales*, Paris. VI-45 (January 20, 1900). pp. 51-52.

The Supply of Gutta-percha. By Hawthorne Hill. [Data concerning demand for submarine insulation and past and prospective sources of supply.] = *Electrical Review*, New York. XXXVI-10 (March 7, 1900.) p. 234.

L'Extraction du Caoutchouc des Écorces. By J. Dybowski and — Faber. [Correspondence relating to certain new processes for obtaining rubber from trees which have been killed by the ordinary methods.] = *Revue des Cultures Coloniales*, Paris. VI-47 (February 20, 1900). pp. 104-106.

Les Arbres à Caoutchouc à Ceylon. [Based upon recent circulars of the royal botanic gardens in Ceylon]. = *Revue des Cultures Coloniales*, Paris. VI-48 (February 20, 1900). pp. 121-123.

The Climatic Limits for the Cultivation of *Manihot Glaziovii* in India. By Mohammed Jusha Ullah. = *Indian Gardening*, Calcutta. V-7 (August 17, 1899).

Kautschuk-Expedition nach Westafrika. By R. Schlechter. [Relates to the occurrence of the *Kickxia* and *Landolphia* species in the various colonies; methods of extraction of the latex; and several methods of coagulation.] = *Der Tropenpflanzer*, Berlin. IV-3 (March, 1900.) pp. 109-120.

Government Requirements in Rubber Goods. [Editorial article referring particularly to the demand for rubber in England growing out of the war in Africa.] = *Engineering*, London. LXIX-1784 (March 9, 1900.) p. 328.

Die Guttapercha. By Ernst Feyerabend. [A comprehensive summary of details of Gutta-percha production, and its physical, mechanical, and electrical properties, and their application, based upon Dr. Obach's lectures and other recent publications.] = *Elektrotechnische Zeitschrift*, Berlin. XXI-7 (February 15, 1900.) pp. 134-137.

INSULATED WIRE IN WHALE FISHING.

THE up-to-date whale fisher has a dynamo on the ship, while the boat which puts off to attack the whale carries a large reel of fine insulated wire. One end of the wire is connected with the dynamo, and at the other end is a curious harpoon made of hard rubber and metal about 24 inches long. The harpooner throws this electric barb and the instant it strikes the whale it gets the full shock of a strong current of electricity, and is dead in a second.

A DECREE was published in the *Diario Oficial* of the republic of Costa Rica on November 16, 1899, authorizing the free exploitation of India-rubber from the national forests.

DEATHS IN THE RUBBER TRADE.

WILLIAM G. VERMILYE.

WILLIAM G. VERMILYE, treasurer of the Goodyear Rubber Co., and general manager of their factory at Middletown, Conn., died at his home in that town on March 11, after an illness of a little more than a week, beginning with *la grippe* and terminating in pneumonia. He was born at Newark, N. J., on June 1, 1841, and was a son of the late Jacob D. Vermilye, for many years president of the Merchants' National Bank of New York. He was educated in the schools of his native town, and then spent a year with the Newark Banking Co., after which, in 1859, he entered the employment of the Union India Rubber Co., in New York. Subsequently, at various times, he was connected with the rubber store of Halsted & Ackerman, in New York, with the Newark India Rubber Co., and with the Union India Rubber Co. (as secretary), and during three years he conducted a rubber store of his own. The Union India Rubber Co. succeeded to the business of the Newark India Rubber Co., and thus became interested in the manufacture of rubber footwear, which was transferred first to the Union company's factory in Harlem, New York, and later to a factory acquired at Middletown, Conn. In 1872 Mr. Vermilye became connected with the Goodyear Rubber Co., organized in that year by Frederick M. Shepard and the late Joseph A. Minott, who had been associated previously as the Rubber Clothing Co., and who sustained close relations with the Union India Rubber Co., Mr. Shepard being at that time president and Mr. Minott secretary of the latter corporation.

After having lived for twenty-five years at Englewood, N. J., Mr. Vermilye, about four years ago, took up his residence in Middletown, his relation to the factory requiring his presence there for much of the time. Not only did his careful and progressive management of the factory result in great benefit to the town, but his support of whatever tended to the good of the community earned for him the widest esteem and appreciation of his fellow citizens. For three years, and until his death, he was president of the Middletown Board of Trade and for two years president of the Young Men's Christian Association. As a tribute to his business capacity it is stated that during the dull times of 1893 and the succeeding years the Goodyear factory at Middletown was run on full time, while in other years it often was run overtime. In addition to his other business interests, Mr. Vermilye, on the death of his father, succeeded him as a director in the Merchants' National Bank.

Funeral services were conducted at the late residence of Mr. Vermilye on March 13, by the pastor of the North Congregational Church, after which the remains were conveyed to Englewood, N. J. There were further services in the chapel of the Presbyterian church at Englewood on March 14, the interment being made at Brookside, N. J. The work at Middle-



WILLIAM G. VERMILYE.

town was suspended for three days, and the flag over the factory displayed at half mast. The various stores of the Goodyear company, throughout the country, were closed on Wednesday.

Mr. Vermilye married Miss Cornelia W. Rowland, daughter of the late Dr. H. A. Rowland, of Newark, who survives him, with three daughters, who reside at home, and two sons—William G. Vermilye, Jr., and H. Rowland Vermilye—who reside at Englewood.

The Goodyear Rubber Co. have appointed as general manager at Middletown Thomas W. McDonald, who has been employed there since the beginning of Mr. Vermilye's connection with the factory, in 1875.

ABNER J. TOWER.

ABNER J. TOWER, the well known oiled clothing manufacturer of Boston, died on March 17 at Augusta, Ga., at the age of 48 years. He was born at Hull, Mass., and was the son of the noted underwriters' agent and wrecking master, Captain Moses B. Tower, who died in November, 1898. His mother, who survives him, was a Miss Cushing, of the old Hingham family of that name. The family moved to Boston when Mr. Tower was a child, and he was educated in the Boston public schools.

At the age of 18 he went to work for P. B. Eager & Son, oiled clothing manufacturers. He showed such marked business ability that in a short time he was taken into the firm as a partner, the style of the firm changing to P. B. Eager, Tower & Co., and later, upon the retirement of Mr. Eager, to A. J. Tower. Under his energetic management the business grew rapidly, and in 1884 he purchased a factory at Roxbury, where he made extensive additions, and soon had one of the largest factories in Boston, and the largest oiled clothing factory in the world, constantly extending this business until his death.

Mr. Tower was also interested in the Metropolitan Rubber Co. and the New York Insulated Wire Co., in each of which corporations he had long held the office of treasurer. Of late years he had become prominent in many financial enterprises, and was regarded as one of the ablest business men in Boston, his advice being constantly sought in new undertakings. He was a trustee of the Boston Five Cent Savings Bank and a director in the Mercantile Trust Co. He belonged to various social organizations in and about Boston, among them the Art Club and the New Riding Club. Of the latter he was a director and a member of the executive committee.

He was a genial and kind-hearted man, freely giving his time and advice to help others, and there are many successful business men of to-day who owe much of their prosperity to Mr. Tower. He often helped them most by showing them how to best use their own ability and opportunities. His acts of charity were likewise many, but always unostentatious.

The funeral occurred on March 22, from Sears' chapel, Boston. The honorary pallbearers were representatives of the corporations of which he had been a member, but the active pallbearers were ten of the oldest employés of the Tower factory in Roxbury. A delegation from the New England Rubber Club was in attendance and many tributes were sent. Mr. Tower is survived by his wife and two children, to whom is left a beautiful residence in Longwood, near Boston.

THE state of Amazonas, in Brazil, of which Manáos is the political and commercial capital, has granted a concession for a new line of steamers on the upper Amazon and its tributaries, involving a guarantee of interest at 7 per cent. for twenty-five years, on 5,000,000 milreis of capital. This is an indication that a larger movement of India-rubber is anticipated.

NEWS OF THE AMERICAN RUBBER TRADE.

THE END OF RUBBER SHOE AUCTIONS.

IT now appears that the practice of offering at auction every year the accumulation of factory damaged and out of date rubber boots and shoes has become a thing of the past, so far as the United States Rubber Co. are concerned. William F. Mayo & Co. (Nos. 197-203 Congress street, Boston) have entered into a long term contract to handle the entire output of this class of goods produced by the Boston Rubber Shoe, Can-dee, Wales-Goodyear, Woonsocket, Meyer, Jersey, and American factories. Messrs. Mayo will confine their attention to such goods entirely, to the exclusion of all regular goods. The firm were the largest buyers of out of date rubbers at the auction in Boston on February 1.

NEW RUBBER SHOE PRICES.

THE announcement of list prices and discounts on rubber boots and shoes by the United States Rubber Co. and the other manufacturers are due to reach the trade on this date, in accordance with the usual custom. The catalogues of the various factories are also about ready for distribution.

UNITED STATES RUBBER STOCKS.

FOLLOWING a decline in the Stock Exchange quotations for Rubber common to the lowest point reached for many months, the New York *Times* reported, on March 16; "United States Rubber common advanced $3\frac{1}{4}$ points yesterday on sales of barely 1000 shares. Explanatory of this, it is now said that at the meeting of the directors of the company, to be held in Boston April 5, at which action on the dividend will be taken, it will be developed that the 1 per cent. quarterly dividend will be continued, and that, despite the falling off in business, the company will have, after payment of both preferred and common stock dividends, a surplus of \$1,000,000." The previous decline, on the same authority, was due to "further unfavorable trade news and lack of inside support." The news was then circulated in "the street" that the prices of rubber shoes, to be announced on April 1, would not be reduced.

The lowest point reached for Rubber shares was on March 14— $25\frac{1}{4}$ for Common and 93 for Preferred—since which time there has been a steady advance.

RUBBER GOODS MANUFACTURING CO.

THE directors on February 28 declared a quarterly dividend—the fourth for the year—of $1\frac{1}{4}$ per cent. on the preferred shares, payable on March 15 to shareholders of record on March 8. Checks were mailed to registered shareholders on March 14. Baring, Magoun & Co. (New York) are the company's transfer agents. A report is in circulation to the effect that application will be made shortly for the listing of Rubber Goods shares on the New York Stock Exchange.

A prominent brokerage firm in New York advise THE INDIA RUBBER WORLD: "Officers of the company inform us that they are going to pay a 4 per cent. dividend upon the common stock in June, and we understand that the earnings of the company will show a very handsome surplus over the 7 per cent. on the preferred and the 4 per cent. to be paid on the common."

DECISION IN ONE OF THE BANIGAN SUITS.

IN the appellate court at Providence, R. I., on March 5, Chief Justice Matteson gave a decision in the suit brought by the late Joseph Banigan against the United States Rubber Co., to recover on account of his salary as president of the company and chairman of the executive committee, between April 1,

1895, and March 4, 1896, a sum equal to the salaries paid to him during the preceding year. His salary as president prior to April 1, 1895, had been at the rate of \$25,000 a year, but during the year in question, the executive committee, after some delay, reduced the figure to \$10,500. After his resignation Mr. Banigan sued to recover the whole amount, and, after the introduction of much evidence on both sides touching the extent and quality of Mr. Banigan's services, and in view of the fact that the salaries of the other officers had not, as a rule, been reduced proportionately, the court decided that compensation should be allowed at the rate of \$17,500. "As to the salary of the plaintiff as a member of the executive committee," says the decision, "there is no dispute that he is entitled to recover the amount claimed."

RUBBER DEVULCANIZERS FOR RUSSIA.

IN reference to an order for two devulcanizers, for use in a rubber factory in Russia, filed recently by William Allen & Sons (Worcester, Mass.), this firm advise THE INDIA RUBBER WORLD: "These two devulcanizers are 54 inches diameter, each containing three cars, which are used for the purpose of carrying the stock to be devulcanized in and out of the machine. In a great many cases the devulcanizers made by us have an extra set of cars, which is equal to a saving of one devulcanizer, for while the machine is working they are loading up the second cars. Hence, after devulcanizing the rubber it is simply a matter of drawing out the other cars and pushing in those that are loaded, and *vice versa*, therefore keeping the machine at work all the time instead of keeping it standing while the cars are being loaded." The Messrs. Allen have built a great many of these devulcanizers for use in the United States and have shipped some to Canada.

PATENT NOT INFRINGED.

THE bill in equity brought by Benjamin F. Lamb *v.* James J. Horton *et al.* for an injunction to restrain the defendants from the alleged infringement of the Lamb patent for eye shields was dismissed by Judge Colt in the United States circuit court at Boston. The court holds that the Lamb patent is limited to a cushion of felt or other similar fibrous material, and that it is not infringed by the defendants, who manufacture an eye shield in which the cushion is composed entirely of rubber.

ORDERS FOR RUBBER PRESSES.

THE Boomer & Boschert Press Co. (Syracuse, N. Y.) have received orders recently from the following concerns for steam plate presses:

H. O. Canfield, Bridgeport, Conn., 2 presses $12'' \times 14''$ and 4 presses $21'' \times 25''$.

The Canadian Rubber Co. of Montreal, 2 presses $21'' \times 25''$.

Concord Rubber Co., Concord Junction, Mass., 1 press $21'' \times 25''$.

Excelsior Rubber Co., Canton, Ohio, 1 hydraulic press $16'' \times 16''$.

The LaCrosse Rubber Mills Co., LaCrosse, Wis., a combined cloth and scrap baling press.

SUCCESS OF RUBBER SHOE HEELS.

THE O'Sullivan Rubber Co. (Lowell, Mass.) recently awarded \$200 in prizes to storekeepers in different parts of the country, from New England to California, for the best window displays devoted to their rubber shoe heels. The Boston *Journal*, in a note on the success of the O'Sullivan brothers with their shoe heels, says that about four or five years ago they kept a comparatively small shoe store at Lowell.

BUSINESS MEN'S CLUB OF MEMPHIS.

THE enterprising merchants and manufacturers of Memphis, Tenn., whose excursion over the new railroad to Oklahoma was mentioned in THE INDIA RUBBER WORLD, have, as one result of the impressions gained on that trip of the value of co-operation in cultivating business relations with neighboring states, organized the Business Men's Club of Memphis. A lengthy article in *The Commercial Appeal* on the objects of this club, and of the favorable prospects for its success, has been supplemented by a letter to THE INDIA RUBBER WORLD by Mr. H. N. Towner, of Towner & Co., dealers in rubber goods in Memphis, who is secretary of the new club. He says:

"A charter has been obtained, and the club is now thoroughly organized, with a membership of over 200 of the foremost merchants and manufacturers of this city, who propose to work hand in hand for the progress and good of our city. One of our first efforts was to bring in an excursion which arrived here yesterday [March 15] from the Oklahoma territory, and was composed of over 200 people. Among them were over fifty merchants and buyers, who came here to purchase their summer supply of goods, and in many instances place their orders for fall stock for future delivery. They were merchants engaged in every line of business and most of them were very large merchants whose purchases run up into the thousands." It may be added that many of them have not hitherto been buyers in Memphis. Doubtless it would be to the interest of merchants in many other towns to emulate the example of the business men of Memphis.

AN AKRON COMPANY'S NEW YORK BRANCH.

THE Goodyear Tire and Rubber Co. (Akron, Ohio) announce to the trade that they have opened a shop for the repair of their carriage and motor vehicle tires at No. 1557 Broadway, New York, where they desire to have all their tires in service in the east sent for the necessary repairs. This department will be run by experienced workmen, and the repair department at the factory will be continued for western business. The charges on all tires sent either to the factory or to the New York repair shop should be prepaid, and the owner's name and address attached.

WORK RESUMED AT PORT DALHOUSIE.

THE Maple Leaf Rubber Co., Limited, is the new name by which the Toronto Rubber Shoe Manufacturing Co., Limited, will be known hereafter, the maple leaf being Canada's national emblem. The company's new factory at Port Dalhousie, built to replace the plant destroyed by fire last year, is now running with a capacity of 10,000 pairs of rubber boots and shoes per day. The main building is 230 feet long, with five floors, and the company have about 100,000 square feet of floor space. About \$250,000 is being spent upon the new factory and equip-



H. N. TOWNER.

ment. The contractors for the machinery were The Farrel Foundry and Machine Co. (Ansonia, Conn.) The water-wheels were supplied by the Rodney-Hunt Machine Co. (Orange, Mass.), and the sprinkler equipment by the Walworth Manufacturing Co. (Boston). Samples from the new factory are now being distributed.

RUBBER SHOE PRICES IN CANADA.

At a recent meeting of rubber shoe manufacturers at Montreal it was decided to adopt a uniform price list for the coming season's trade, and a committee was appointed to prepare such a list to be issued on April 1. The new price list, according to the *Canadian Shoe and Leather Journal*, will show some changes made necessary by the continued high prices of raw materials. Not only rubber is higher than last season, but cotton, fleeces, and nearly every other article used. Wooden cases, not an unimportant item, are costing 75 per cent. more than at this time last year. It is not expected that the advance in prices will equal the advance on the materials used. An all around advance of about 7 per cent. is expected. The *Journal* says: "Canadian prices for some years past have been from 5 to 7½ per cent. below the prices at which similar goods are sold in the United States, no advantage apparently having been taken of the protective tariff of 25 per cent. against imported goods. It has been decided to make the rubber shoe year end on the last day of February in each year instead of the end of March, as formerly, so that lists and discounts will be announced in future one month earlier, as more suitable for the Canadian trade. Many houses doing business in the distant provinces ask for samples in March. Arrangements for the new season will embrace a contract binding jobbers as to the prices and discount at which they will sell to the retail trade, and an equalization of freights as from competing points."

A LARGE ORDER FOR RUBBER BELTING.

The specifications for the rubber belting for the new grain elevator of 1,000,000 bushels capacity, which is being erected for the Chesapeake and Ohio Railway Co. at Newport News, Va., are as follows:

3077	feet	40	inches	5	ply.
776	"	36	"	5	"
464	"	30	"	4	"
3018	"	24	"	4	"
2920	"	22	"	6	"

The total length is nearly two miles. All the duck in these belts is to weigh 32 ounces to 9 square feet. The contractors for the erection of the elevator—the John S. Metcalf Co., Chicago—advise THE INDIA RUBBER WORLD: "Heretofore it has been the custom in elevator work to specify that the belting to be used should be some particular brand or its equivalent, and the results were not always satisfactory. In this case we specified that the belt should stand a certain test, and we found that a number of belting firms refused to quote on this basis." The whole order has been given to a single firm.

NEW INCORPORATIONS.

THE Federal Rubber Co., March 2, under New York laws; capital, \$20,000. Directors: Theron L. Smith, Henry L. Brown, and Charles E. Carr, all of Brooklyn.

=The Ducable Tire Co. (Philadelphia), under New Jersey laws; capital, \$100,000. Incorporators: Frank D. Mullan (superintendent of The Manufactured Rubber Co., of Philadelphia), H. C. Magee, and W. J. Jackson. Formed to manufacture the Ducable vehicle tire, described in the last INDIA RUBBER WORLD.

=The Duckwall-Harmon Rubber and Mill Supply Co. (Indianapolis), March 14, under Indiana laws; capital, \$8500. Directors: Herbert R. Duckwall, Edward Harmon, Chauncey B. Watson.

TRADE NEWS NOTES.

=The Farrel Foundry and Machine Co., at Ansonia, Conn., are arranging a new stock room near the railroad, where standard sizes of machines and rolls and all other castings used in rubber work will be kept constantly on hand, so that orders may be filled with the least possible delay.

=The Pennsylvania Rubber Co., at Erie, Pa., who have been very busy of late, are adding to their mechanical equipment a "Jumbo" mill and a large refinery.

=A. L. Comstock, superintendent of the American Rubber Co., now that he has the National factory, at Bristol, also on his hands, is an exceedingly busy man, but such is his faculty for organization that he runs both plants with apparent ease.

=Winfield S. Knowles, of Boston, New England agent for the Manhattan Rubber Manufacturing Co., has been completing and rearranging his stock of goods, until it is now as complete a line as any handler could wish. E. L. Andrews, formerly a salesman for The Clifton Rubber Manufacturing Co., is doing very effective work for Mr. Knowles.

=The Milford (Mass.) Rubber Co., it is reported, have put in fifty sewing machines and begun the manufacture of mackintoshes. The business of this company heretofore has been confined to proofing for the trade.

=The Maynard Shoe Co., of Claremont, N. H., who have been making rubber soling, are reported to be about to take up the manufacture of mechanical rubber goods.

=E. E. Leach, who is well known to the New England rubber trade, has taken the sale of the druggists', stationers', and mechanical goods lines of The B. F. Goodrich Co. for New England, with headquarters at No. 67 Chauncy street, Boston.

=The Cable Rubber Co. are building a new boiler house at their factory at Jamaica Plain, Mass., to be equipped with Kendall boilers. They are also putting in a new 250 horse power Slater engine.

=Arthur Reeve, who for ten years was assistant to Walter S. Ballou, now has charge of the styles of rubber footwear at the Wales-Goodyear and Woonsocket factories.

=Irving W. Green, son of Frank W. Green, the New York broker, has taken a position with the Manufactured Rubber Co., of Philadelphia, to market their product.

=Willis A. Darling, for many years selling agent of the Boston Woven Hose and Rubber Co., and one of the best known and most popular men in the mechanical goods trade, has been appointed manager of the New Jersey Car Spring and Rubber Co.

=Arthur F. Townsend, vice president of the Manhattan Rubber Manufacturing Co., has returned to New York from a visit to the Pacific coast, pressure of business at home having prevented him from going on to Japan, as he at one time intended.

=The Standard Rivet Co. have on exhibition at No. 41 Lincoln street, Boston, a beautifully finished machine of the type supplied to rubber shoe factories. The machine was made for the Paris exposition, but later the company decided to exhibit it at home.

=E. H. Cutler, selling agent of the Model Rubber Co., of Woonsocket, who is showing some handsome samples of rubber shoes at his Boston office, reports enough orders in hand to keep the factory busy for several months.

=The Beacon Falls Rubber Shoe Co. are trying the experiment of lighting their shoe rooms with arc lights, as better adapted for their purpose than incandescent lights, on account of not producing shadows.

=Spinney, Wise & Co., of Lynn, Mass., are making a very fine quality of electric tape, and marketing all that they can produce.

=The Miller Rubber Manufacturing Co., of Akron, Ohio, are sending an attractive little package to physicians and surgeons all over the country. It contains one of their seamless finger cots rolled into the smallest possible compass, accompanied by printed matter describing its advantages.

=The B. F. Goodrich Co. will have in their plant at Akron, when the additions now under way are completed, the finest laboratory that has been built in any factory. It will be in charge of Charles Goodrich, who has been given *carte blanche* in its arrangement and equipment.

=Morgan & Wright, of Chicago, have opened a distributing depot for their tires in Boston, at No. 80 Batterymarch street, in charge of E. Clifford Potter, their New England salesman. A full stock of bicycle, vehicle, and automobile tires is carried, and there is also a fully equipped repair shop in the building.

=The Canadian Rubber Co. of Montreal and the Toronto Rubber Shoe Manufacturing Co. have each placed a large order with Joseph O. Tougas & Co., of Brockton, Mass., for dies for rubber shoe work.

=The Selden packings, which have been marketed so successfully by Randolph Brandt, of New York, have undergone a slight increase in price, made necessary by an advance in the raw materials used.

=The factory of The L. Candee & Co., at New Haven, after having been run on short time for a few weeks, was closed on March 2 for a month. This is the annual shut down, but the period is longer than usual this year on account of the unfavorable weather of the past winter.

=Henry W. Lovejoy, No. 123 St. Mark's avenue, Brooklyn, N. Y., formerly connected with the Universal Rubber Co., has filed a petition in voluntary bankruptcy. His liabilities are \$30,695.66, represented by promissory notes to various rubber companies. He reports no assets.

=A. W. Chesterton & Co., of Boston, dealers in oil, tallow, and rubber goods, were slightly damaged by a recent fire in the building in which they occupy a store.

=Parker, Holmes & Co., Boston, dealers in leather and rubber shoes, suffered heavy damages from water and some from fire in a building on Federal street, in which they occupy a floor, on February 27.

=Manufacturers and handlers of mechanical rubber goods are not particularly pleased with the idea of a radical advance in the price of couplings, sprinklers, and other brass goods that is confidently predicted.

=Charles F. Parker, of Boston, the inventor of the aluminum last and boot tree, is also the inventor of the well-known "Sodality" iron last, which he sells to shoe men all over the world.

=The Weld buckle for arctics seems to have a call with the new rubber shoe factories as well as the old, and the owners of the patent, in spite of the dull season in the rubber footwear trade, have been busy this winter in filling orders.

=The Joseph Banigan specialties in army duck have had a heavy sale. It is generally conceded that this company was months ahead of the others in producing this particular line of goods, and the popularity which they enjoy is a compliment to the trio of bright rubber men in charge of the manufacturing and marketing of these goods.

=Francis H. Robinson, broker in crude India-rubber, No. 60 Broad street, New York, has taken into partnership Albert V. W. Tallman, and the business will be conducted under the firm name of Robinson & Tallman.

=Morgan & Wright, the Chicago tire manufacturers, have filed a suit in the United States circuit court against the Toledo (Ohio) Cycle Supply Co., for alleged infringement of their patents on double tube and single tube bicycle tires.

=The Haverhill Rubber Co., of Haverhill, Mass., have removed their store from No. 28 Washington street to better quarters at No. 125 Merrimack street.

=Gustave Kush has started in the mechanical rubber business at No. 63 Gold street, New York, making a specialty of rubber blankets for the use of lithographers and of newspaper and other printers. He points out that lithographers require a blanket which, in most instances, performs different work from printers' blankets.

=H. R. Corse has left his position in the Boston office of the United States Rubber Co. to take a course in factory practice with the Beacon Falls Rubber Shoe Co.

=C. H. Wheeler, general manager of The India Rubber Co. (Akron, Ohio), is busily engaged in setting up the machinery transferred from the Peoria (Ill.) Rubber and Manufacturing Co., for the consolidation of the two plants. Incidentally, Mr. Wheeler is equipping a very complete laboratory at the Akron plant.

=George H. Quincy, selling agent of the Providence (R. I.) Rubber Shoe Co., says that New England retailers are not now heavily stocked with rubber shoes. In the west, however, stocks are fairly good.

=William Keyes, proprietor of the Prescott Brothers rubber and wringer store, Cornhill, Boston, has opened a fine new store, 100 feet deep, at No. 159 Summer street, near the new Terminal station.

=William N. Scheel, No. 159 Maiden lane, New York, reports a good demand for two rubber substitutes—"Arial black" and "Arial white."

=The United and Globe Rubber Cos. (Trenton, N. J.) are reported to be running their factory to their full capacity on mechanical goods.

=F. G. Saylor, of the Saylor Rubber Co., is now interested in the manufacture of linoleum at East Taunton, Mass., and a company is now forming to purchase the old unused dye and chemical works at Walpole, which, with slight alterations, is excellently adapted to manufacturing linoleum. These goods are made in different grades and are the result of Mr. Saylor's own ideas.

=W. R. Brixey (New York), the owner and manufacturer of the "Kerite" insulating compound, has had made recently some very handsome sample boards, one of which has been sent to Japan.

=The two factories of the Boston Rubber Shoe Co. have been closed for a month, dating from March 26. They had been run on short time for two months previously, and many of the employés have gone elsewhere.

=Notices were posted at the "Alice" and Millville factories of the Woonsocket Rubber Co., early in the month, stating that both factories would be idle from Thursday, March 8, to Monday, April 2.

=The employés of the rubber goods store of F. C. Howlett & Co., at Buffalo, N. Y., won in a recent closely contested bowling game with a team from the rubber boot and shoe house of Edward R. Rice, in the same city. These games are of yearly occurrence, the Rice team having won last year.

=The Goodyear Rubber Co. (St. Paul branch) recently made a shipment of their "Gold Seal" lumberman's boots with leather tops to Bennett, British Columbia, via Alaska.

=The St. Paul (Minn.) Rubber Co. expect to be established in their new store, the five story building, Nos. 220-226 East Third street, by April 10. It is understood that their business, which embraces rubber boots and shoes, mackintoshes, and oiled clothing, was notably larger during the past year than ever before.

=Edward F. Bragg, manager of The Automatic Rubber Mixer Co., has removed his office to No. 272 Devonshire street, Boston.

=Colonel Theodore A. Dodge, president of the Single Tube Automobile and Bicycle Tire Co., sailed from New York on March 13, on the *Kaiser Wilhelm*, for Paris, to be absent two or three months.

=The New Brunswick Flexigum Co., of New Brunswick, N. J., have opened an office at No. 127 Duane street, New York, where samples can be seen of their rubber substitute. They are still at work developing a new substitute, with special adaptation to the manufacture of rubber footwear and mechanical goods.

=The Toronto *Globe* says: "Mr. H. D. Warren, president of The Gutta Percha and Rubber Manufacturing Co., has forwarded a cheque for \$1000 to Colonel Sweny for the national patriotic fund. He says: 'The objects of the fund must strike a responsive chord with all, and I apprehend that ample funds will be forthcoming to properly consummate the work undertaken. If by chance, however, a sufficient amount is not obtainable, we shall be glad to increase our subscription.'"

=The Gutta-Percha and Rubber Manufacturing Co., of Toronto, Limited, have applied to the city for a permit to erect a three story brick and stone factory building, to cost \$15,500.

=The various departments of the factory of the National India-Rubber Co., at Bristol, R. I., were closed on March 17, the notices posted in the buildings stating that work would be resumed on Monday, April 2.

=A most useful set of "Calculation Tables for Buyers of Crude Rubber" is being sent out with the compliments of Otto Meyer, Boston, representative of Livesey & Co., Liverpool, crude rubber importers. It gives the net cost of rubber after allowance is made for shrinkage, the tables covering the cost of rubber from 20 cents to \$1.09 per pound, and every degree of shrinkage from 10 to 60 per cent. Thus rubber quoted at 65 cents per pound, if the rate of shrinkage should be 28 per cent., will cost the manufacturer, net, 90.28 cents.

=The circular announcing the opening of the Monarch Rubber Co.'s factory in St. Louis, gives not only a fine illustration of the completed plant, but fac similes of the brands of goods which are to be used which will be sold under the names of the "Sunset Rubber Co." and "Prairie Rubber Co." the "Monarch," with the Elk head trademark, being the first grade. At present the company will devote themselves particularly to first grade goods. President Harry E. Wagoner was in the East recently, and was delighted with the way their goods were selling. In spite of the dull season he has experienced no difficulty in placing a large part of their output almost at once.

=E. H. Cutler, selling agent of the Model Rubber Co., is showing some beautiful samples of goods, one particularly attractive sample being made up over a last which he whittled out by hand.

=So many employés of the Boston Rubber Shoe Co., at Malden, Mass., reside in Boston, that a special train is run for them every morning from Boston to Edgeworth, more than 200 passengers being left at the works.

=Rubber Island is the title of a mystic, fascinating, improbable, and altogether humorous picture from the pencil of Clark, the wholly original advertising man of the B. F. Goodrich Co., of Akron.

=The Columbia Automobile Co. have one of their handsomest vehicles upholstered throughout in "Pegamoid," and the result seems to leave nothing to be desired in the way of beauty and durability.

=Jacob Pfeiffer, president of the Miller Rubber Manufacturing Co., is very prominent in the Akron lodge of "The Elks." During a recent visit of the Editor of THE INDIA RUBBER WORLD to that city he was Mr. Pfeiffer's guest at an entertainment and social session, which was extremely enjoyable. A number of other rubber men were also present, including Francis H. Holton, the well known pioneer expert in the sundries line.

=An exceedingly pretty souvenir that the Eureka Fire Hose Co. give to favored customers is a pencil so painted that it looks as if it had been rolled in a section of the American flag. At the top are the stars in a bright blue ground, and running from that to the point are the red and white stripes, the whole effect being very ornamental and quite likely to please the patriotic.

=The booklet issued by the Boston Artificial Leather Co., entitled "Under the Hub," has one page that will attract the attention of the practical man, whether he cares about Boston's subway or not. It consists of a single sheet of "Morrocoline," and one needs really to examine it carefully to appreciate what a tough, flexible, valuable product it is.

=A recent arrival in New York from Europe was the Baron H. Arnous de Riviere, who gave out that he was on his way to Mobile, Ala., where he would attempt to organize a company to exploit rubber in Bolivia. This is not his first essay in this direction. In February, 1893, he had incorporated in New York the Beni Gum Co., with \$500,000 capital, in which he held 4500 shares. In April of that year he started on an expedition to the Beni river country, accompanied by Joseph P. Earle and others interested in rubber and mining, but their experience was so far from satisfactory that the Beni Gum Co. soon dropped out of sight. Baron de Riviere has spent much time in South America, but when in the United States makes his home at Mobile, where he married.

=Richard H. Pease, vice president of the Goodyear Rubber Co., and general agent for the United States Rubber Co. in San Francisco, is on his annual visit to the East.

=A. H. Yeomans, purchasing agent of the Boston Rubber Shoe Co., accompanied by Mrs. Yeomans, is spending a few weeks in California.

=The Boston rubber shoe jobbing firm of Converse & Pike have adopted the name Tremont Rubber Co. There will be no change in management but new offices have been taken from April 1.

=Henry F. Hering has become connected with the New Jersey Car Spring and Rubber Co. as salesman in New York and its vicinity.

=The Davidson Rubber Co. (No. 19 Milk street, Boston) make a proposition relative to introducing their golf balls that should prove interesting to players as well as dealers.

EXPANSION OF A CHICAGO HOUSE.

THE Quaker City Rubber Co.'s Chicago branch will be removed on May 1 from No. 21 South Canal street to a new store at No. 201 East Madison street, which is large and more suited to their purposes, and where they will do a retail business in connection with their already well established wholesale business. The company's Chicago trade has been growing very rapidly of late, and they have outgrown the quarters which have been occupied for four years past. This is a branch store of the Quaker City Rubber Co.—Charles A. Daniel, proprietor—of Philadelphia, and is a distributing point for the entire West and South for the well known Daniel's patented packings. The Chicago branch expects to do a large mackintosh and rubber clothing business in the future, and is arranging for more room to extend their business in the western country in many lines.

GOOD RUBBER WEATHER.

HEAVY snowfalls over an extensive area during the first half of March led to a demand for rubber boots and shoes which had an immediate favorable effect upon retailers, sales, and to a certain extent upon the business of jobbers. The ultimate result will prove favorable to the manufacturers, in that the stocks to be carried over to the new season will be smaller than at one time appeared probable. The second snowstorm of the season in New York came on March 16, and while the total depth was less than in the February storm, the snow lingered longer on the streets, owing to the greater difficulty in removing it. On the same date the heaviest snow of the season fell in northern Texas, Oklahoma, and Indian territory, many places reporting six inches of snow. There was also snow in New Orleans, and a heavier fall in Tennessee.

Twenty inches of snow fell in Chicago during 25 hours, on February 27-28. At the same time heavy falls of snow were reported from western Ohio, all of Indiana and eastern Kentucky and northern Tennessee, Missouri, Kansas, eastern Nebraska, Iowa, southern Minnesota, southern and eastern Wisconsin, the northern peninsula of Michigan, that part of the southern peninsula of Michigan bordering Lake Michigan, and all of Illinois. In the northern part of Illinois and in Iowa and Wisconsin high winds prevailed, drifting the snow and blocking the railroads. South of Memphis the storm took the form of sleet which fell generally over Mississippi, Louisiana, and eastern Arkansas. The storm was very heavy at St. Louis.

Western New York experienced a blizzard on March 2. Snow fell for sixty hours at some places, some towns reporting the heaviest snow on record. It extended into Canada, Montreal reporting the worst snowstorm that has occurred within the memory of this generation. In Ohio travel was blocked by snow on March 1. Portions of New England have also had a good share of snow.

Detroit rubber jobbers report large sales, particularly of rubber boots, arctics, and combinations, as a result of three successive snowstorms of remarkable severity early in March.

Z. T. Lindsay, of Omaha, found business during the last few weeks better than during the first part of the season, but not so good as a year ago. A heavy snowfall in Kansas improved conditions very much.

In Canada, after a discouraging season for rubber footwear, enough snow fell late in the season to prove of great benefit to retailers in the sections thus favored. Jobbers and retailers are reported to be still so heavily stocked, however, that many goods must be carried over to the next season. The *Canadian Shoe and Leather Journal* suggests that one effect may be to induce manufacturers to pay more attention to the export trade. The lack of "rubber weather" has resulted in slow collections.

RUBBER YIELD IN NICARAGUA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I have returned to my plantation on the Bluefields river, in Nicaragua. You may be interested in the result of my experiment in bleeding one of my cultivated rubber trees (*Castilla elastica*), at the age of five years and two months from the seed. I extracted from this tree 12 ounces of pure marketable rubber, without apparently injuring the growth of the tree. At the present price here of 60 cents per pound, the 12 ounces would be valued at 45 cents, gold, on the plantation. The yield will increase, of course, as the tree grows older.

WILLIAM S. ARMSTRONG.

Bluefields, February 9, 1900.

RUBBER RECLAIMERS' ASSOCIATION.

THE condition of the market for old rubber shoes for the last year and a half has been so bad, and prices have been so much inflated, that while the rubber manufacturers have borne the burden in silence, yet there has been maturing in the minds of all of them, each one for himself, some plan for improvement. They have had in contemplation the abuses of speculation; of sending quantities of trash in shipments and calling it "old rubbers"; of piling on bagging, as tare, until some shipments were so carefully wrapped up that they contained 10 to 15 per cent. of old sacking; of demanding cash before the goods were received, or making drafts upon the manufacturers, in some cases for 90 per cent. or even 100 per cent. of the amount of invoice. Many of the rubber manufacturers have been quietly experimenting to discover something as a substitute for old shoes, and they have succeeded to an appreciable extent. The pressure on the part of dealers from one side, and on the other the disposition on the part of manufacturers of rubber goods to use less shoddy, seems to have awakened the reclaimers to the situation, and as a result, a meeting called by one of them for the purpose of discussing some plan of action was, to his surprise, attended by fully 95 per cent. of the reclaimers of the country. After discussing their grievances it was decided unanimously to form a Rubber Reclaimers' Association, its object being to promote sociability among its members and to have a headquarters where matters of interest to the trade may be discussed and abuses corrected by concerted action. This meeting was held March 7 at the Astor House, in New York, and was attended by the following gentlemen:

Andrew H. Noah The Diamond Rubber Co.
W. T. Rodenbach The United States Rubber Co.
E. E. Bucketton Joseph Stokes Rubber Co.
Arthur W. Clapp The E. H. Clapp Rubber Co.
N. C. Coleman B. F. Goodrich Co.
A. H. Yeomans Boston Rubber Shoe Co.
Edward R. Solliday New Jersey Rubber Co.
C. Edward Murray Crescent Belting and Packing Co.
R. H. Agnew Raymond Rubber Co.
W. T. Baird Mechanical Rubber Co. and New York
Belting and Packing Co., Limited.
Max Loewenthal United States Rubber Reclaiming Works.
R. A. Loewenthal Loewenthal Rubber Co.
J. K. Mitchell Philadelphia Rubber Works,

and several others. The meeting appointed committees to arrange for permanent organization and for the revision of the conditions of the packing of old shoes and scrap rubber. A price was agreed upon which should be the market price of old shoes for the balance of the month of March, all the members present signifying their assent by signing an agreement. The committees were requested to submit their reports at the next meeting of the association, to take place at the Hardware Club, New York, on March 28.

At the meeting referred to a permanent organization was formed, under the name of the Rubber Reclaimers' Association, with the following officers:

President—Edward R. Solliday.

Vice President—J. K. Mitchell.

Secretary—William T. Baird.

Treasurer—N. C. Coleman.

Executive Committee—W. T. Rodenbach, A. W. Clapp, J. K. Mitchell, R. McClymonds, R. A. Loewenthal.

As the season for the collecting of old rubbers will soon be here, it cannot be doubted that the association will have a marked influence on the price of the next crop of old shoes. So far as heard from, the dealers in the trade appear to be heartily in favor of the movement and propose to give it their support, feeling that this movement on the part of the manu-

facturers will enable them to do business on a very much more conservative basis and permit them to make profits equally as large as heretofore.

In this connection may be mentioned the increasing rate of imports of rubber scrap from Europe, officially reported by the treasury department for fiscal years as follows, the figures denoting pounds;

1893-94.....	1,774,008	1896-97.....	3,653,945
1894-95.....	2,032,563	1897-98.....	9,488,327
1895-96.....	3,874,077	1898-99.....	16,513,604

These figures have been submitted to a leading dealer, whose impression is that they are correct. Of late years such imports have included other items of worn out rubber goods—hose, tires, and the like—as well as old shoes. "But for the imported scrap," said this dealer, "old shoes of domestic origin would now be selling at prices 50 per cent. higher than those now prevailing."

A TIRE PATENT DECLARED INVALID.

THE patent on a pneumatic tired sulky wheel (No. 494,113) granted in 1893 to Sterling Elliott, of Newton, Mass., and assigned by him to the Hickory Wheel Co., a corporation now owned or controlled by Colonel Albert A. Pope, has been declared invalid by the United States circuit court, at Chicago. Among the vehicle manufacturers to whom a proposition was made by the Hickory Wheel Co. looking to the payment by them of a royalty on every sulky or other vehicle made with pneumatic tires were W. S. Frazier & Co. (Aurora, Ill.), who decided to contest the patent. They refused the proposition and went ahead making pneumatic tired sulkies. The Hickory Wheel Co. began proceedings for an injunction and damages, and the case was decided in favor of the defendants by Judge Grosscup, in the United States circuit court, in Chicago, in 1898, on the ground that the patent was invalid for want of novelty. The decision of the supreme court sustains the decision of Judge Grosscup.

The supreme court said, in deciding the case: "It is a bald aggregation of parts, old in the art, each part operating in the old and usual way, without any semblance of invention in the mechanical means by which a new or useful result is brought about, and even if the combination were otherwise patentable, the previous state of the art shows it was not new in this patent. Pneumatic tires had been used and fully developed before in connection with bicycles, as early as 1891. Solid rubber and cushioned tires had been used long before and were familiar to the public. These, and the pneumatic tire, which now takes their place, had also been used upon small wheels of all sizes, such as are called for by this patent."

The court called attention to the fact that the advantage of pneumatic tires had been pointed out by Thompson, an English inventor, as long ago as 1845.

This decision does not, of course, affect any other patent than that granted to Elliott, the chief claim of which reads:

Claim 1. The combination in a trotting sulky of a frame, shafts or pole, and seat, and wheels less in diameter than the distance between the shafts and the ground, and provided with elastic tires substantially as described.

The decision means, in effect, that makers of bicycle tires had anticipated Elliott and that the fact that his tires were to be applied to vehicles of another form did not give to them the elements of novelty. It does not, even in the most remote degree, affect the Tillinghast, Dunlop and other patents, to all of which the buggy makers who use pneumatics are still amenable.

REVIEW OF THE CRUDE RUBBER MARKET.

THE reduced demand for crude rubber at the factories for the past few weeks has led to something of a decline in prices, though the market has remained measurably firm. There have been indications of a readiness on the part of consumers to buy, but sellers have not manifested an equal readiness to dispose of their holdings at the quotations which have prevailed of late. In consequence the trading has been rather on the "hand to mouth" order. The falling off in the consuming demand which has resulted from the annual shutting down of the shoe factories will not long continue, and there is no likelihood of other branches of the rubber industry becoming less active this summer than for the past year. There is to be considered further the fact that the crop year in the Pará country has practically come to an end.

The latest quotations in the New York market are:

	PARÁ.	AFRICAN.	
Islands, fine, new....	98 @99	Tongues.....	63 @64
Islands, fine, old....	100 @101	Sierra Leone.....	80 @68
Upriver, fine, new....	99 @100	Benguela.....	70 @71
Upriver, fine, old....	103 @103	Congo ball.....	63 @64
Islands, coarse, new....	58 @59	Cameroun ball.....	64 @65
Islands, coarse, old.... none here		Flake and lumps.....	47 @50
Upriver, coarse, new....	74 @75	Accra flake.....	20 @21
Upriver, coarse, old....	76 @77	Accra buttons.....	66 @67
Caicho (Peruvian) sheet	58 @59	Accra strips.....	69 @71
Caicho (Peruvian) strip none imported now.		Lagos buttons.....	65 @66
Caicho (Peruvian) ball	70 @71	Lagos strips.....	65 @66
		Liberian flake.....	@
		Madagascar, pinky....	81 @82
		Madagascar, black....	60 @62
		GUTTA-PERCHA.	
		Fine grade.....	1.75
		Medium.....	1.45
		Hard white.....	1.20
		Lower sorts.....	65
		Balata.....	
CENTRALS.			
Esmralda, sausage....	70 @71		
Guayaquil, strip....	58 @59		
Nicaragua, scrap....	69 @70		
Mangabeira, sheet....	58 @59		
EAST INDIAN.			
Assam.....	78 @81		
Borneo.....	39 @54		
Late Pará cables quote:			
	Per Kilo	Per Kilo	
Islands, fine.....	98@250	Upriver, fine.....	10@500
Islands, coarse.....	38@950	Upriver, coarse.....	68@700
	Exchange 8½d.		

	NEW YORK RUBBER PRICES FOR FEBRUARY. (NEW RUBBER.)		
	1900.	1899.	1898.
Upriver fine.....	1.04 @1.00	1.00 @1.04	89½@95
Upriver coarse.....	80 @ 86	86 @ 92	71 @ 75
Islands fine.....	1.03½@1.08	99 @ 1.01	88 @ 93
Islands coarse.....	61½@ 66	69 @ 73	60 @ 65
Cametá coarse.....	64 @ 68	71 @ 74	61½@70

STATISTICS OF PARA RUBBER (METRIC TONS).

	NEW YORK.			
	Fine and Medium.	Coarse.	Totals, 1900.	Totals, 1899.
Stocks, January 31.....	554	102 =	656	350 = 318
Arrivals, February.....	605	306 =	911	1373 = 1604
Aggregating.....	1159	408 =	1567	1723 = 1922
Deliveries, February.....	592	321 =	913	1315 = 1580
Stocks, February 28....	567	87 =	654	408 = 342

	PARÁ.				ENGLAND.
	1900.	1899.	1898.	1900.	1899.
Stocks, January 31....	1440	1009	1140	450	800
Arrivals, February ...	4000	4700	2680	824	460
Aggregating.....	5440	5709	3820	1274	1260
Deliveries, February ..	3445	3484	3290	825	525
Stocks, Feb. 28... 1995	2225	530	449	735	580

	1900.	1899.	1898.
World's supply, Feb. 28 (excluding Caicho) ..	5656	5545	3403
Pará receipts, July 1 to February 28.....	18,735	18,915	17,430
Afloat from Pará to United States, Feb. 28....	834	1055	
Afloat from Pará to Europe, February 28.....	1705	1120	
Afloat from United States to Europe, Feb. 28.	19	—	

In regard to the financial situation, Albert B. Beers, broker in India-rubber and commercial paper, No. 58 William street, New York, advises us:

"During March the money market has ruled most of the time rather firmer than in February, and rates for commercial paper have been consequently a little higher, viz.: averaging about 5@5½ per cent. for the best rubber names and 5½@6½ per cent. for those not so well known, and the demand at times has been rather light."

FEBRUARY EXPORTS FROM PARA.

FROM—	Kilos.	TO—	Kilos.
Pará.....	2,351,686	United States.....	1,476,871
Manáos.....	803,906	England.....	1,493,442
Iquitos.....	149,474	Continent.....	394,753
Total.....	3,365,066	Total.....	3,365,066

Mail advices from Pará dated March 10 are to the effect that "The market has been quite colorless, the demand having been small and barely sufficient to prevent a further increase of the already heavy stocks existing in first hands, which continue to be estimated at 1000 tons. Scarcity of money remains a disturbing element, as well as the high rate of exchange, which latter severely affects currency prices and checks any desire on the part of holders to meet the market. There prevails, however, a considerable degree of sensitiveness, which at any moment may lead to an important movement."

THE LONDON RUBBER MARKET.

JACKSON & TILL, under date of March 1 report stocks:

	1900.	1899.	1898.
Pará.....(English tons)	—	—	1
Borneo.....	166	119	52
Assam and Rangoon.....	22	18	13
Other sorts.....	337	341	248
Total.....	525	478	314

LIVERPOOL { Pará.....	448	739	580
Other sorts.....	944	567	450
Total, United Kingdom.....	1917	1784	1344

PRICES PAID DURING FEBRUARY.

	1900.	1899.	1898.
Pará fine.....	4/5 @4/6½	4/1½ @4/2¾	3/9½ @3/11½
Negroheads, scrappy	3/5½ @3/5¾	3/7 2/11½ @3/1¼	
Negroheads, Islands....	2/7 @2/7½	2/10½ 2/6 @2/7½	
Bolivian.....	No sales.	4/3	3/11

Hecht, Levis & Kahn, India-rubber importers, have changed their address in London to 36, Fenchurch street, E. C.

LIVERPOOL.

WILLIAM WRIGHT & CO. reported, March 1:

Fine Para.—Prices declined in the early part of the month, owing to accumulation of stock in Pará and the absence of American orders, 4s. 5½d. being touched on spot, and 4s. 5d. for delivery; a sharp reaction then took place, up to 4s. 6¾d.; the market, however, closes a shade easier with sellers at 4s. 6½d. The advance has been caused mainly by European buyers, the Americans still abstaining; the future course of the market will depend upon how long they continue this ab-

stention. It must be borne in mind, however, that we are now getting towards the months of light receipts, and the general state of trade both here and in America will prevent any serious decline in values. The spot demand has been dull, only 30 tons reported. For delivery a good business done, March-April, April-May, and May-June at 4s. 6½d. to 4s. 5d. to 4s. 6¾d., closing with sellers of Upriver at 4s. 6½d. Islands, on the other hand, is scarce and rather wanted. Receipts in Pará this month are 3650 tons, against 3600 last month, and 4770 tons last year, which will leave the crop about 500 tons short up to date.

J. J. Fischer & Co., Limited (Liverpool), reported stocks in that market as follows:

	January 31.	February 28.
Pará : Fine	193 tons	228 tons
Medium	65 "	47 "
Negroheads	199 "	194 "
African.	500 "	595 "
Peruvian	16 "	46 "
Mangabeira	242 packages	256 packages
Pernambuco	10 "	70 "
Ceará	783 "	1209 "
Manicoba	1314 "	1485 "
Assare.	10 "	29 "

Huss, McLeod & Co. are a new firm of India-rubber and general produce merchants at 57 Tower buildings, Water street, Liverpool, composed of James Huss, late manager of Kramisch & Co., Liverpool, and George Macleod, late manager of the Bank of Novia Scotia, Halifax.

THE ANTWERP RUBBER MARKET.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The result of our public sale on March 3 was as follows:

	Offered.	Sold.
Congo sorts	kilos 273,500	207,800
Other sorts	30,500	2,600
Total	304,000	210,400

In sympathy with the English markets the tone was weak. Prices declined 1 to 2 per cent., according to quality. The chief interest centered in a lot of 110 tons of Lopori, of which 67 tons were sold at an average of 9.95 francs. The remaining 43 tons have been cleared since, partially at 9.85 francs and partially at prices not made public. Our stock at the end of February amounted to 619,000 kilograms, of which 455,000 kilograms (arrivals of the steamers *Albertville* and *Stanleyville*) will be exposed for sale on March 30. There are included 57,700 kilograms of Lopori, 30,000 of Mongalla, 12,300 of Bussira, and the other usual Congo sorts.

C. SCHMID & CO.

Antwerp, March 9, 1900.

OTHER IMPORTS AT NEW YORK.

CENTRALS.

	POUNDS.
FEB. 21.—By the <i>Finance</i> =Colon:	
Lanman & Kemp	7,200
G. Amsinck & Co.	4,900
Crude Rubber Co	3,300
Flint, Eddy & Co.	2,400
Kunhardt & Co.	2,200
Lawrence Johnson & Co.	2,100
D. A. De Lima & Co	2,100
A. P. Strout	1,500
Roldan & Van Sickel	1,400
L. N. Chemedlin & Co.	1,200
F. Halberstadt & Co	400
A. S. Lascelles & Co.	400
R. G. Bartholz	300
J. B. Sageman	300
FEB. 23.—By the <i>Teutonic</i> =Liverpool:	
Mark Hydes & Co	1,500
J. H. Rossback & Bros	1,000
FEB. 24.—By the <i>El Mar</i> =New Orleans:	
Albert T. Morse & Co	2,600
FEB. 26.—By the <i>Orizaba</i> =Mexico:	
H. Marquardt & Co	3,500
Tibbals & Blossom	1,500

F. Probst & Co	1,000	MARCH 2.—By the <i>Mantou</i> =London: ✓
Thebaud Brothers	900	O. G. Mayer & Co 4,500
Flint, Eddy & Co	300	MARCH 3.—By the <i>Seneca</i> =Mexico:
FEB. 25.—By the <i>Knickerbocker</i> =New Orleans:		E. Steiger & Co 12,000
Albert T. Morse & Co	5,000	H. W. Peabody & Co 2,500
W. R. Grace & Co	8,000	Thebaud Brothers 500
FEB. 26.—By the <i>Alene</i> =Greytown, etc.:		H. Marquardt & Co 800
Andreas & Co	2,700	For Export 1,500 17,000
A. P. Strout	2,500	
G. Amsinck & Co.	2,000	MARCH 6.—By the <i>El Cid</i> =New Orleans:
Kunhardt & Co.	2,000	Albert T. Morse & Co 20,000
Guerterman, Rosenfeld & Co.	1,200	A. N. Rotholz 1,000 21,000
For London	500	MARCH 7.—By the <i>Alleghany</i> =Port Limon, etc.:
MARCH 1.—By the <i>Athos</i> =Colon:		Kunhardt & Co 1,500
Hirzel, Feitman & Co	8,600	Park Son & Co 1,500
A. Santos & Co	4,100	G. Amsinck & Co. 1,300
Dumarest & Co	3,000	Munoz & Espriella 700
Roldan & Van Sickel	2,400	A. N. Rotholz & Co 600
D. N. Carrington & Co	1,900	For London 800 6,300
Flint, Eddy & Co	1,400	MARCH 7.—By the <i>Palatia</i> =Hamburg :
Frame, Alston & Co	1,200	Livesey & Co 10,500
W. R. Grace & Co	1,100	MARCH 12.—By the <i>Etruria</i> =Liverpool:
Piza, Nephews & Co.	600	Reimers & Co 7,500
Lanman & Kemp	300	MARCH 7.—By the <i>Allianca</i> =Colon:
MARCH 2.—By the <i>Bellanoch</i> =Bahia:		Hirzel, Feitman & Co 6,500
J. H. Rossback & Bros	25,000	Isaac Brandon & Bros 6,000

ANTWERP RUBBER STATISTICS FOR FEBRUARY.

DETAILS.	1900.	1899.	1898.	1897.	1896.
Stocks, Jan. 31, kilos	542,098	298,511	91,704	120,453	71,598
Arrivals in February . . .	884,156	226,031	233,597	84,958	48,232
Aggregating . . .	1,426,254	524,542	325,301	205,411	119,830
Sales in February . . .	307,454	274,231	94,549	19,668	71,522
Stocks, February 28 . . .	618,800	250,311	230,752	185,743	48,308
Arrivals since Jan. 1 . .	1,360,036	511,864	320,934	210,269	61,853
Sales since January 1 . .	1,033,227	524,893	184,645	184,154	132,399

There arrived at Antwerp recently a shipment of rubber direct from Brazil, which was regarded with interest as pointing to the development of an important market here for Brazilian rubbers. It consisted of 68,770 pounds of Pará rubber and 10,340 pounds of Cauchó, consigned to the Comptoir Colonial Français, a new company mentioned on another page of this journal, to work concessions on the upper Amazon and the Javary.

IMPORTS FROM PARA AT NEW YORK.

[All Figures Denote Pounds.]

February 28.—By the steamer *Hildebrand*, from Manáos and Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucó.	Total.
Reimers & Co	140,400	23,700	93,900	2,300=	260,300
Crude Rubber Co	153,900	25,700	35,500	.....=	225,100
New York Commercial Co	74,200	14,400	31,200	7,200=	127,000
Boston Rubber Shoe Co	48,100	7,900	10,500	46,600=	113,100
Albert T. Morse & Co	21,900	9,200	67,700	21,700=	120,500
Otto G. Mayer & Co	37,200	7,400	14,700	1,800=	61,100
Edmund Reeks & Co	9,100	2,300	4,900	.....=	16,300
George G. Cowl	8,900	700	4,100	.....=	13,700
Kunhardt & Co	3,400	1,300	.....	.....=	4,700
G. Amsinck & Co	1,200	600	.....	.....=	1,800
Total	498,300	93,200	272,500	79,600=	943,600

March 12.—By the steamer *Maranhense*, from Manáos and Pará:

New York Commercial Co	211,600	38,900	41,700	4,200=	296,400
Boston Rubber Shoe Co	62,500	9,200	45,600	69,400=	186,700
Reimers & Co	96,000	19,000	41,200	4,600=	160,800
Crude Rubber Co	93,000	20,000	21,800	.....=	134,800
Albert T. Morse & Co	71,400	14,800	58,000	.....=	145,100
Lawrence Johnson & Co	25,500	6,500	10,000	.....=	42,000
George G. Cowl	5,800	3,000	3,900	1,600=	14,300
William Wright & Co	13,600=	13,600
Otto G. Mayer & Co	7,700=	7,700
Total	565,800	111,400	230,800	93,400=	1,001,400

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APRIL 1, 1900.

G. Amsinck & Co.	4,800	George A. Alden & Co.	4,000	MARCH 7.—By the <i>Asama</i> =Singapore:
Kunhardt & Co.	3,800	Livesey & Co.	6,500	D. P. Cruikshank..... 11,000
Lawrence Johnson & Co.	3,600	A. T. Morse & Co.	500	MARCH 7.—By the <i>Moria</i> =Colombo :
Flint, Eddy & Co.	3,000		J.W. Greene & Co. (Pontianak).... 195,000	
A. P. Strout.	3,100	FEB. 28.—By the <i>Pennsylvania</i> =Hamburg:		
Crude Rubber Co.	3,000	George A. Alden & Co.	24,500	George A. Alden & Co. 140,000
W. Losiza & Co.	1,600	Reimers & Co.	74,000	R. Strauss & Co (Pontianak) 130,000
Piza Nephews & Co.	1,400	Livesey & Co.	6,000	130,000, 400,000
Roidan & Van Sickle	1,300	MARCH 1.—By the <i>Southward</i> =Antwerp:		
Andreas & Co.	1,200	George A. Alden & Co.	24,000	George A. Alden & Co. 115,000
Eggers & Heinlein	900	Crude Rubber Co.	24,000	R. Strauss & Co (Pontianak) 115,000
Jimenez & Escobar	900	Reimers & Co.	28,000	MARCH 10.—By the <i>Calanda</i> =Singapore:
	41,100	William Wright & Co.	15,000	C. Von Postall & Co. (Pontianak).... 140,000
MARCH 10.—By the <i>Yucatan</i> =Mexico:		Albert T. Morse & Co.	5,500	George A. Alden & Co (Pontianak). 130,000
H. Marquardt & Co.	5,000		R. Strauss & Co (Pontianak) 130,000	
Tibbals & Blossom.	2,500	MARCH 3.—By the <i>Germanic</i> =Liverpool:		
H. W. Peabody & Co.	1,600	George A. Alden & Co.	15,500	George A. Alden & Co. 115,000
P. Harmony Nephews & Co.	1,600	Crude Rubber Co.	15,000	R. Strauss & Co (Pontianak) 115,000
Graham, Hinckley & Co.	500	Ottó G. Mayer & Co.	11,000	MARCH 22.—By the <i>Indravelli</i> =Singapore:
	10,000	Livesey & Co.	3,000	Reimers & Co (Pontianak) 42,000
MARCH 10.—By the <i>Coleridge</i> =Pernambuco:			J. W. Greene & Co. (Pontianak).... 75,000	
Lawrence Johnson & Co.	2,000	MARCH 5.—By the <i>Barcelona</i> =Hamburg:		
E. B. Latham & Co.	500	Albert T. Morse & Co.	29,000	Reimers & Co (Pontianak) 88,000
	2,500		C. Von Postall & Co. (Pontianak).... 72,000	
MARCH 12.—By the <i>Louisiana</i> =New Orleans:		MARCH 5.—By the <i>Lucania</i> =Liverpool:		
Albert T. Morse & Co.	3,000	Reimers & Co.	20,000	Behn Meyer & Co. (Pontianak) 220,000 875,000
MARCH 12.—By the <i>Altair</i> =Greytown:		William Wright & Co.	22,500	
Klemhorst & Co.	1,000			
G. Amsinck & Co.	500	MARCH 5.—By the <i>Borderer</i> =Lisbon:		
A. P. Strout.	600	Reimers & Co.	147,000	
A. D. Straus & Co.	400	Albert T. Morse & Co.	118,000	
Guterman, Rosenfeld & Co.	600	George A. Alden Co.	45,000	
For Europe.	2,500	Crude Rubber Co.	44,600	
	5,600		354,000	
MARCH 15.—By the <i>Advance</i> =Colon:		MARCH 7.—By the <i>Westernland</i> =Antwerp:		
Isaac Brandon & Bros.	3,700	George A. Alden & Co.	23,500	
Linman & Kemp	3,000	Crude Rubber Co.	23,000	
Flint, Eddy & Co.	1,600	Reimers & Co.	11,000	
Eggers & Heinlein	1,500	William Wright & Co.	7,500	
D. H. Carrington & Co.	1,100		85,000	
W. Losiza & Co.	500	MARCH 10.—By the <i>Palatia</i> =Hamburg:		
E. Schernikow	300	Livesey & Co.	5,500	
W. R. Grace & Co.	200			
	11,900	MARCH 7.—By the <i>Menominee</i> =London:		
MARCH 15.—By <i>El Norte</i> =New Orleans:		Ottó G. Mayer & Co.	4,000	
A. T. Morse & Co.	2,500			
W. R. Grace & Co.	1,000	MARCH 12.—By the <i>Etruria</i> =Liverpool:		
P. Nieto & Co.	1,000	George A. Alden & Co.	13,500	
	4,500	Crude Rubber Co.	13,500	
MARCH 16.—By the <i>Vigilancia</i> =Mexico:		Livesey & Co.	20,000	
Graham, Hinckley & Co.	2,000	Reimers & Co.	9,000	
Thebaud Brothers	2,000			
E. Steiger & Co.	1,700	MARCH 10.—By the <i>Patricia</i> =Hamburg:		
Tibbals & Blossom	1,000	George A. Alden & Co.	26,000	
H. W. Peabody & Co.	500	Crude Rubber Co.	24,000	
J. W. Wupperman	200	Reimers & Co.	11,000	
	7,400	William Wright & Co.	4,500	
MARCH 19.—By the <i>Campana</i> =Liverpool:			60,000	
Reimers & Co.	3,000	MARCH 10.—By the <i>Palatia</i> =Hamburg:		
		Livesey & Co.	5,500	
MARCH 20.—By the <i>Roman Prince</i> =Santos:				
Schlotzman & Arnold.	* 4,000	MARCH 7.—By the <i>Menominee</i> =London:		
		Ottó G. Mayer & Co.	4,000	
MARCH 20.—By <i>El Sud</i> =New Orleans:				
Albert T. Morse & Co.	3,000	MARCH 12.—By the <i>Etruria</i> =Liverpool:		
		George A. Alden & Co.	13,500	
MARCH 21.—By the <i>Finance</i> =Colon:		Crude Rubber Co.	13,500	
Crude Rubber Co.	4,000	Livesey & Co.	20,000	
Piza Nephews & Co.	1,000	Reimers & Co.	9,000	
D. N. Carrington.	800			
C. Wessels & Co.	700	MARCH 19.—By the <i>Columbian</i> =Liverpool:		
	6,500	George A. Alden & Co.	44,800	
MARCH 21.—By the <i>Adirondack</i> =Savanna, etc.:		William Wright & Co.	45,000	
G. Amsinck & Co.	6,000		90,000	
Mecke & Co.	1,000	MARCH 19.—By the <i>Tauric</i> =Liverpool:		
Kunhardt & Co.	1,500	Ottó G. Mayer & Co.	5,400	
Guterman, Rosenfeld & Co.	800			
For Europe	2,000	MARCH 19.—By the <i>Aspirante</i> =Liverpool:		
	11,300	George A. Alden & Co.	24,000	
MARCH 23.—By <i>El Dorado</i> =New Orleans:		Crude Rubber Co.	24,000	
A. T. Morse & Co.	8,000	Livesey & Co.	11,500	
			71,000	
MARCH 23.—By the <i>Teutonic</i> =Liverpool:		MARCH 16.—By the <i>Patricia</i> =Hamburg:		
William Wright & Co.	18,000	George A. Alden & Co.	28,000	
Reimers & Co.	5,000	Crude Rubber Co.	28,000	
	23,500	Reimers & Co.	22,500	
MARCH 23.—By the <i>Kenneth</i> =Colon:		Ottó G. Mayer & Co.	1,500	
Hirzel, Feltman & Co.	10,200		80,000	
G. Amsinck & Co.	9,100	MARCH 17.—By the <i>Campana</i> =Liverpool:		
Zarnikow, McDougall & Co.	5,000	George A. Alden & Co.	28,000	
Dumaresq & Co.	3,800	Crude Rubber Co.	28,000	
D. A. De Lima & Co.	3,000	Reimers & Co.	22,500	
Lawrence Johnson & Co.	1,900	Ottó G. Mayer & Co.	1,500	
Linman & Kemp	1,900			
W. R. Grace & Co.	1,500	MARCH 17.—By the <i>Columbian</i> =Liverpool:		
A. Santos & Co.	900	George A. Alden & Co.	44,800	
Toldman & Van Sickle	600	Crude Rubber Co.	45,000	
Muntzler & Dubois	300	Livesey & Co.	45,000	
	38,200		90,000	
MARCH 23.—By the <i>Waldsee</i> =Hamburg:		MARCH 19.—By the <i>Tauric</i> =Liverpool:		
Reimers & Co.	2,300	Ottó G. Mayer & Co.	5,400	
MARCH 24.—By the <i>Orizaba</i> =Mexico:		MARCH 21.—By the <i>Trove</i> =Genoa:		
J. Steiger & Co.	4,500	Reimers & Co.	4,000	
H. Marquardt & Co.	4,000			
I. Probst & Co.	1,000	MARCH 21.—By the <i>Noordland</i> =Antwerp:		
Tibbals & Blossom	200	Albert T. Morse & Co.	150,000	
	9,700	George A. Alden & Co.	17,000	
		Crude Rubber Co.	16,000	
			\$13,000	
		MARCH 22.—By the <i>Teutonic</i> =Liverpool:		
		William Wright & Co.	10,000	
		George A. Alden & Co.	10,000	
		Crude Rubber Co.	10,000	
		Reimers & Co.	8,000	
		Livesey & Co.	5,000	
			41,000	
		MARCH 23.—By the <i>Waldsee</i> =Hamburg:		
		Geo. A. Alden & Co.	15,000	
		Reimers & Co.	13,000	
		A. T. Morse & Co.	13,000	
		Livesey & Co.	2,500	
			43,500	
		MARCH 23.—By the <i>Oestrum</i> =Lisbon:		
		Ottó G. Mayer & Co.	11,500	
		MARCH 23.—By the <i>Africans</i> :		
		Reimers & Co. (Africans)	2,300	
		MARCH 27.—By the <i>Kansas</i> =Liverpool:		
		Boston Rubber Shoe Co. (Africans)	27,160	
		MARCH 8.—By the <i>Cambrian</i> =London:		
		Reimers & Co. (East Indian)	36,421	
		FEB. 14.—By the <i>Sagamore</i> =Liverpool:		
		William Wright & Co. (Africans) ... 11,000		
		Reimers & Co. (Africans) ... 11,859		
		George A. Alden & Co. (Africans) ... 5,800		
		Crude Rubber Co. (Africans) ... 5,628		
			34,257	
		FEB. 17.—By the <i>English King</i> =Antwerp:		
		Reimers & Co. (Africans) ... 9,535		
		Total, January	105,946	POUNDS. VALUE.
		Total, February	109,763	
			65,290	
		GUTTA-PERCHA.		
		FEB. 13.—By the <i>Barnesmore</i> =London:		
		Reimers & Co. [Value, \$1493]		
				10,518

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